UNECONOMIC distribution of products is costing the American public millions of dollars each year and is one source of waste demanding the attention of industry. This article indicates the broadness of the field, what preliminary work already has been done and what the distribution congress expects to accomplish. Six main subjects will come up for consideration and are as follows: 1. *Business figures as a means of accomplishing economies in distribution;* 2. *trade relations;* 3. *advertising and advertising mediums;* 4. *costs of business operation;* 5. *methods of distribution; and* 6. *general conditions affecting distribution. Preliminary surveys on these subjects already have been prepared and will assist in mapping the course of the conference. The author of this article, John W. O'Leary, is president of the Chamber of Commerce of the United States.*

Reducing Cost of Distribution

Conference To Be Held in Washington Will Seek To Cut Waste and Duplication in Marketing of Products — Booms and Depressions Provide Heavy Losses — Cost To Nation Tremendous

By John W. O'Leary

DOMESTIC distribution, in many respects a no-man's land of business, embraces everything that comes under the name of marketing. It covers not merely the actual passing of goods and commodities from hand to hand, but also the methods by which buyer and seller are brought together and by which an equilibrium is maintained between supply and demand. To point out some of the pitfalls and obstacles encountered in domestic distribution and which result in the loss of many hundreds of millions of dollars every year, some two hundred economists, editors, advertising and business men engaged in this study will meet in Washington in December.

At present, there is no way of determining the total sales of various goods and commodities annually, within billions of a true figure, although $56,000,000,000 may be taken as an approximate total. However, preliminary surveys are being made in this field and are nearing completion.

Neither is there any way of ascertaining how much of this sum represents economic waste. The lack of information concerning stocks on hand, production, sales, and market requirements probably accounts for huge annual losses which are in the end charged up to profit and loss and paid out of the pockets of the consumer public. In dealing with such enormous figures, details ordinarily considered insignificant assume as impressive importance. Even the boxes in which goods are packed constitute an item for serious consideration. One investigating body suggests that millions could be saved to industry every year if manufacturers and retailers would agree on standard sizes and materials for containers so as to make them available for use both in shipping

An economic loss totaling millions is caused by present methods of distribution. Shortening the span between industry and consumers—the farmer for instance—and the agriculturist and the user of farm products, is one phase of the problem

goods and in storing them on the merchants' shelves.

Many more millions in losses are held chargeable to unethical credit practices. Figures are cited for 1924 showing that 20,500 commercial failures occurred in this country that year with liabilities of $542,000,000, of which between 40 and 50 per cent were tainted with fraud. Estimates of losses due to credit frauds are cited ranging from $150,000,000 to $400,000,000 every year.

Six Surveys Prepared

There are other sources of great waste which will be brought to the attention of the December conference. However, the main purpose is to blaze a way for the more deliberate study of the many factors entering into the problem of distribution itself, the sum total of all practices and methods devised for a highly organized civilization to meet needs that were once satisfied by simple roadside barter. When it meets, the conference will have before it six surveys, each covering a general phase of the problem.

Secretary of Commerce Hoover has characterized disastrous booms and slumps as "the greatest waste in our economic system." The membership of the first survey, with Owen D. Young as chairman, was designated at the request of Secretary Hoover and will indicate a method of avoiding these losses.

What it costs to feed, clothe and house the American public is now largely a matter of economic guesswork. The manufacturer, the wholesaler and the retailer all are now obliged to work in the dark because of lack of statistics to guide them. This survey will suggest statistical methods to show the demand for certain commodities, what stocks are available, and what should be provided to meet actual requirements. The primary object of this research is to obtain a check against overproduction and over-buying, important sources of distributive waste which are paid for as business stagnation or hard times. This will greatly aid in curtailment of wasteful marketing efforts and will establish sales quotas on the basis of actual needs. At present there is no basis for estimating how much is expended unwisely in attempts to sell commodities where there is little or no demand for them. The merchant and manufacturer have no figures to guide them and must depend on their own sagacity.

The committee on trade relations will make the second survey and point out some of the abuses of trade practice which result in waste. This work covers those practices which have not been labeled unfair by the federal trade commission, but nevertheless are considered unsound and costly. Such abuses are attributed to price fluctuations, over-selling, overbuying, and many other causes. Among those cited are cancelations and returns, delivery delays, substitution, unethical credit practices and discrimination among customers, all of which contribute to economic wastes. A preliminary survey shows that "the experience of every business man with trade abuses is bound to make him realize the enormous cost of business of the existence of lawless and unethical practices between producers and distributors. Sometimes these losses can be measured with a fair degree of accuracy, as in the case of fraudulent bankruptcies. Obviously there is not a single business practice which we have described as unethical for which someone does not bear a heavy cost."

The survey indicates that losses from unethical credit practices are overshadowed by those due to discord between production and distribution. Some of those to be presented to the conference are:

The manufacture and distribution of too many varieties of specific articles.

Over-production of goods to be sold at a certain price.

Hand-to-mouth buying.

Failure of makers of similar articles to adopt standard sizes.

Lack of standardization of quality and workmanship.

Failure to eliminate needless transportation costs.

Unsound extension of credit by manufacturers to wholesalers and by wholesalers to retailers.

Destruction of containers.

Highly speculative buying and selling.

Measures will be recommended for correcting these abuses, such as the developing practice of arbitration of trade disputes and methods by which business may establish and enforce standards of conduct. The survey will point out progress made toward the direction of self-regulation of business.

Would Avoid Duplication

The field of the third survey covers advertising and its function in bridging the gap between producer and consumer. It will delimit the economic field of advertising, outline methods of market analysis, and suggest means of avoiding duplication.

The fourth survey will cover operating costs, indicating the important factors, and will deal also with costs whose proportions are unknown but which are tangible, as services and conveniences. Methods of cost analysis and how the merchant can compare his own figures with others in his own trade will be suggested. Reduction of costs through individual and co-operative effort, such as a central delivery system, will also be presented for consideration.

Comparative figures of value will be assembled by the fifth survey. It will offer the results of its study of the methods of distribution not only through ordinary channels from manufacturer to wholesaler to retailer to consumer, but also through chain store, mail order house, auctions and house-to-house convassing, and the places of each in the general economy of selling.

General conditions affecting distribution are dealt with by the sixth survey. It will cover legislation affecting the problem, such as laws on misbranding, standardization of units of measurement, taxation of merchandise belonging to nonresidents, and will set forth the relations of distributors to governmental agencies in connection with the Sherman act, the Clayton act, and the federal trade commission act.

The final survey will point out advantages and defects of the present distributive system built up to supply the enormous daily needs of the nation at large. This work discloses many defects and sources of waste, but also establishes the fact that as a whole prevailing methods are constantly improving and constitute the most effective and econmical system of distribution that business ingenuity has been able to devise.

Makes Temperature Tests

As a part of its investigations on metal roofing materials, the bureau of standards, Washington, recently completed some measurements on the roof of the national museum in order to determine the relative values of air and roof temperatures on a hot day. The air temperature was found to be 86 degrees Fahr. and the roof 131 degrees Fahr. Installation of a recording pyrometer now is being planned to give a complete record over a period of time. Because changes in temperature cause expansion and contraction and must be considered in roofing design, it is pointed out that knowledge of these temperature relations is important.

Organizing for Safety Work

Committee Is Best Medium of Interchange of Ideas and Policies Between Employes and Management—Department Should Function as Service Division to Assist Foreman

By George Hodge

SAFETY organization is a prerequisite of effective safety work. In any plant, large or small, some sort of a safety committee is an essential of systematic and progressive accident prevention. It is the best medium, the only real medium yet devised for bringing the ideas of the employes to the attention of the management, and the policies of the management to the employes.

The new or junior safety man in attacking his problem as regards organization and safety committees should consider the following carefully:

1. Size and type of the industry.
2. Personnel of committees, whether all employes or half management and half employes.
3. The safety problem, whether one of mechanical guarding or education.

A steel mill employing 2700 has a plant staff committee of executives which meets once a week to discuss managerial problems. The superintendent shows his interest in safety by putting accident prevention as the first order of business. The management at this mill believes in safety committees composed of all employes, and the safety inspector, therefore, has a deputy inspector located in each department.

The superintendent places the responsibility for accidents entirely upon his foremen and expects them to create and maintain in the mind of every employe a personal interest in preventing accidents. Comparing the record so far this year with the average for the last three years, an 80 per cent improvement has been accomplished.

A farm machinery manufacturing plant employing about 4000 has a plant staff committee consisting of executives as in the instance already cited. There is a works council safety committee composed of two employes and two management representatives. Because of the size of the works, departmental safety committees are appointed in such departments as woodworking, malleable and gray iron foundries, etc. Comparing the record so far this year with the average for the last three years, a 20 per cent improvement has been made. An automotive plant employing 2800 has a works council safety committee who co-operates with the plant staff committee. Every two weeks the plant staff committee meets immediately after luncheon in the plant cafeteria.

In addition to the usual personnel of the plant staff group, the foremen attend one meeting and the next is attended by the assistant foreman, chairman of the employe representatives of the works council, as well as various employes from hazardous departments. This works has been considering for some time the advisability of appointing deputy safety inspectors in each department. Comparing the record so far this year with the average for the last three years, a 70 per cent improvement has been accomplished.

Corporations having plants in various cities present a broad and complete problem in securing a free and continuous interchange of viewpoints between management and men. One such corporation employs normally 40,000. The 30 operations represent a cross section of industry, coal and iron mines, steel and rolling mills, railroads, manufacturing plants, twine mills, etc. The interchange of viewpoints, is accomplished through a central safety committee in the general offices of the company.

The personnel includes the vice president in charge of manufacturing as chairman, manager of works, five works managers, each having five plants under his supervision, and manager of industrial relations, with the chief safety inspector acting as secretary. This body meets every month and reviews the records of the various plants, etc.

The plant staff committees refer major items to the central committee, which has the power to formulate general policies relating to accident prevention. Showing that this body is a real live working group, some of the subjects as to which it has issued definite rules and regulations are: Guarding of belts, belt fasteners, belt shifters, controlling mechanism, elevator gates, floor loads, goggles, handling molten metal, etc., goggles, packers; knife head for wood working machinery, lathe dogs, leggings, shoes in foundries; scaffolds, and electrical construction and equipment.

Under the auspices of this committee a monthly pamphlet is published for distribution to foremen, local committees, etc., and is the means of putting in their hands safety information which the committee desires passed along to everyone in the organization.

It will be seen that the broad principles of safety are laid down by the central safety committee and the plant staff, council and departmental committees take care of the detail application of accident prevention rules.

Comparing the record so far this year with the average for the last three years, a varying but most encouraging degree of improvement has been accomplished, as follows: Two plants, 100 per cent improvement; six plants, 90 to 100 per cent; five plants, 70 to 90 per cent; three plants, 50 to 70 per cent; six plants, 10 to 50 per cent, and six plants, no improvement. The foregoing is on the basis of lost time, but on the basis of severity, number of days lost per 1000 hours worked, the following has been the result: 1923, 3.0; 1924, 2.5; 1925 (9 months) 1.4.

Any form of committee is worth

Work With the Foreman

IN ORGANIZING for the prevention of accidents," says the author of this article, "industrial managers are apt to forget that the foreman is the one man responsible for the safety of his department. The safety organization composed of the safety department and all committees simply represent a service department to assist the foreman in meeting his obligation." The author is assistant manager, industrial relations department, International Harvester Co., Chicago. The paper, of which this article is an abstract was presented at the fourteenth congress of the National Safety council, Cleveland, Sept. 28-Oct. 2.

while and that some form is essential, provided that the interest of the management is present, coupled with the ability to create and maintain the interest and co-operation of employes.

No matter how much accident prevention is discussed in committee meetings, unless the information is passed along to the man on the job, little will be accomplished. The objective therefore, of the safety committee should be the purpose of disseminating safety and educational data to employes.

In organizing for the prevention of accidents, we are apt to forget that the foreman is the one man responsible for the safety of his department and that the safety organization, composed of the safety department and all committees, simply represents a service department to assist the foreman in meeting his obligation.

Trophies Inspire Safety Records

REPRESENTATIVES of the principal plants of the United States Steel Corp. usually attend the annual congress of the National Safety council and participate actively in the programs. The companies' safety engineers and directors contribute papers describing their organizations and methods of promoting safety. Sometimes they have introduced additional features of novelty or interest, such as playlets, motion picture exhibitions, and stereopticon views accompanying addresses.

At this year's congress, in Cleveland, Sept. 28 to Oct. 2, representatives of the Carnegie Steel Co. presented two special features. One was a stereopticon exhibition of a score or more safety devices and "safe" equipment, made from photographs taken in various iron and steel plants, the industry generally co-operating. The company's safety director exhibited the views and explained the important points.

At the same time, at the Hotel Cleveland, the company "put on" one of the most novel exhibits ever seen at the national council's meetings. The exhibit consisted of five safety trophies of the Carnegie Steel Co. It was the first time all the trophies were brought together from the various plants that have won them, and it was, so to speak, the "unveiling" of the 1926 trophy, that is yet to be awarded.

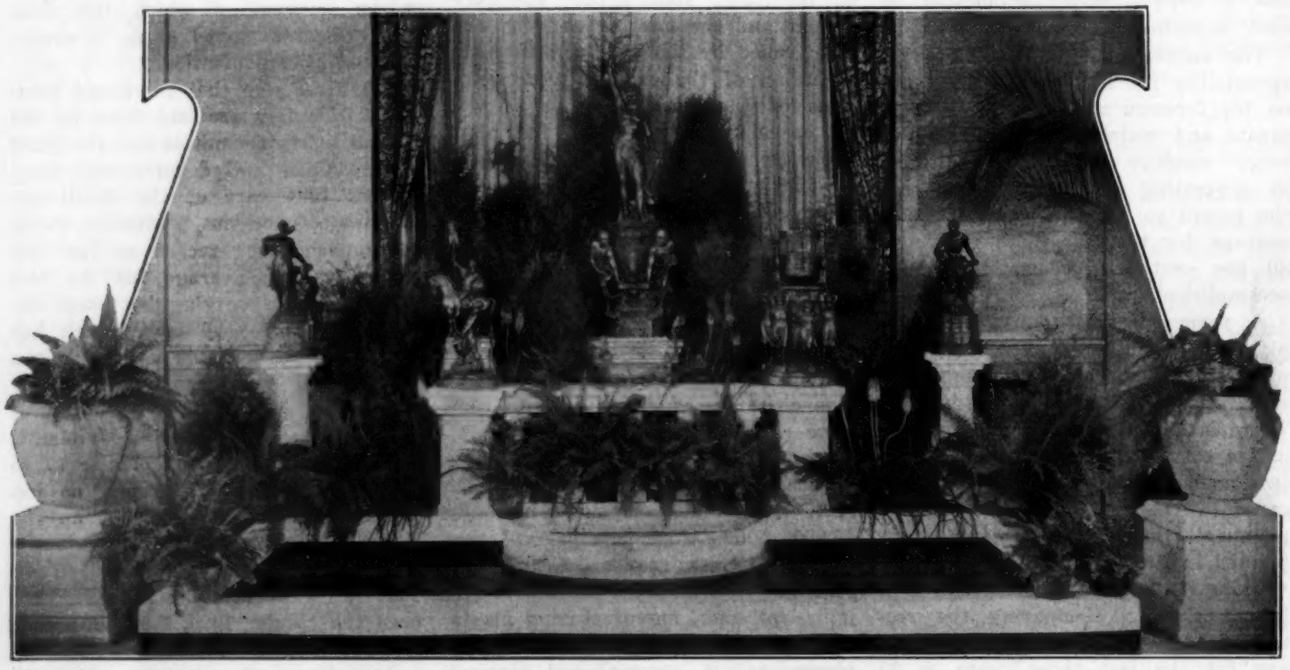
"It is the educational phase that inspired these trophies," said a representative of the company. "In 1920 the idea was conceived that men strive in contests when there is something at stake. The spirit of sportsmanship is inherent in every man. Therefore, why not make the safety work a game, put it on a competitive basis? The idea took root and after much thought and search for a suitable goal or award the bronze trophy was decided upon.

"Guiseppe Moretti, of Florence Italy, an eminent sculptor spent a year in study of the abstract subject and finally produced the trophy for 1922.

"Immediately the spirit of competition manifested itself in the attitude of the men in the plants and in the safety records with their reductions. So keenly did the men feel over their department records that it was taken as a personal affront when a comrade sustained the slightest injury. It was readily demonstrated that the idea of competition was a success, and with each year it grew.

"The basis of award was a problem to be mastered. Because of the difference in the number of men employed in each plant and the varied kinds of work, a fair basis was reached by having each plant compete against its own record for the preceding five years. This plan has worked out very satisfactorily and is the basis now maintained. The plant making the greatest percentage of reduction in lost time accidents in a month holds the trophy for the succeeding month, and the plant making the greatest percentage of reduction over its own record for the preceding five years at the end of the year is awarded the trophy permanently.

"The 1922 trophy is owned by the Edgar Thomson works, Braddock. This plant had a reduction of 85.53 per cent over its average percentage of lost time accidents for the years 1917-1921 inclusive. The percentage of accidents to average force employed was used as the basis for calculation.



The Farrell works at Farrell, Pa., won the trophies for 1923 and 1924 and now has possession of them. For 1923 this plant had a reduction of 84.28 per cent over its average percentage of lost time accidents for the years 1918-1922, while for 1924 it had a reduction of 84.36 per cent over its average percentage for the years 1919-1923."

A reduction of 86 per cent in lost time accidents has been made by the Carnegie Steel Co. since it started its safety educational work in 1911.

Prepares Lecture on Heat Insulation

Estimations place the waste of industrial heat annually in this country at approximately a billion dollars, heat losses due to conduction and radiation averaging over 25 per cent of the total available heat in the fuel. With this waste in mind, the Celite Products Co., Los Angeles, recently has prepared a bulletin entitled "High Temperature Insulation," which is a compilation of data on the methods of heat transmission through heated walls composed of materials of varying conductivities. This material was prepared and arranged primarily to be used with lantern slides as a lecture to be used by the engineering departments of the leading universities in the country. To give it a wider circulation, however, it has been printed.

Will Test Wire Rope While in Use

Instruments designed for testing specimens of steel hoisting rope are familiar to engineers, but to test steel rope without the necessity of cutting off a sample is something entirely new. For some time the bureau of standards, Washington, has been working on such a test. The investigations have been in the direction of applying some form of magnetic analysis to determine the rope condition, it being known that breaks in individual wires, worn places, affect magnetic permeability as well as the stress on the rope.

The bureau recently completed its investigation of the effect of wear on the magnetic properties and tensile strength of steel wire such as is used in making wire rope. It was found that wear increases the magnetic permeability for low magnetizing force, and decreases it for higher values. In other words, opposite readings are secured, depending on the magnetizing force employed. A load produces a similar effect, although of less magnitude, and is probably occasioned by a redistribution of the internal wire stress. This magnetic properties change is accompanied by an increased tensile strength.

Complete results of the research work are given in scientific paper No. 510 of the bureau of standards, copies of which can be obtained from the superintendent of documents, government printing office, Washington.

Offers Extension Course

A 10 weeks' engineering extension course dealing with the effect of fabrication and heat treatment on iron and steel opened Oct. 2 at the Indianapolis Chamber of Commerce under the auspices of the manufacturers' division of that body. This course is under the direction of Purdue university, Lafayette, Ind. In 1924 a six weeks' course covering the same work was conducted with an enrollment of 129 and proved so successful that a second semester was added, with an attendance of 102. The course, which requires no fees, is expected to attract even larger numbers this year.

Studies Sponge Iron

Production of sponge iron by several promising methods has interested the bureau of mines, Washington, for some time, research work in this field having been carried on for the past year at the North-Central experimental station, Minneapolis. The result of the station's investigations of the factors affecting the time rate of iron ore reduction are applicable to sponge iron investigation and will be continued, giving a means of interpreting scientifically the results obtained in the latter field. A number of other experiments on the metallization of iron ore also are being carried on and thought has been given to outlining the future work of the bureau of mines in such a manner that it may best fit in with the problem of production of steel by direct process. Attention also is directed to the best methods of utilizing products from the metallizing process and to the economics of these processes with respect to utilizing low grade iron ores.

Publishes Paper

A paper which proved of interest when presented at the convention of the American Society for Steel Treating in Cleveland in October was "Initial Temperature and Mass Effects in Quenching," by H. J. French and O. Z. Klopsch of the bureau of standards, Washington. This paper is now obtainable in bulletin form as technologic paper No. 295 of the bureau, copies being obtainable from the superintendent of documents, government printing office, Washington.

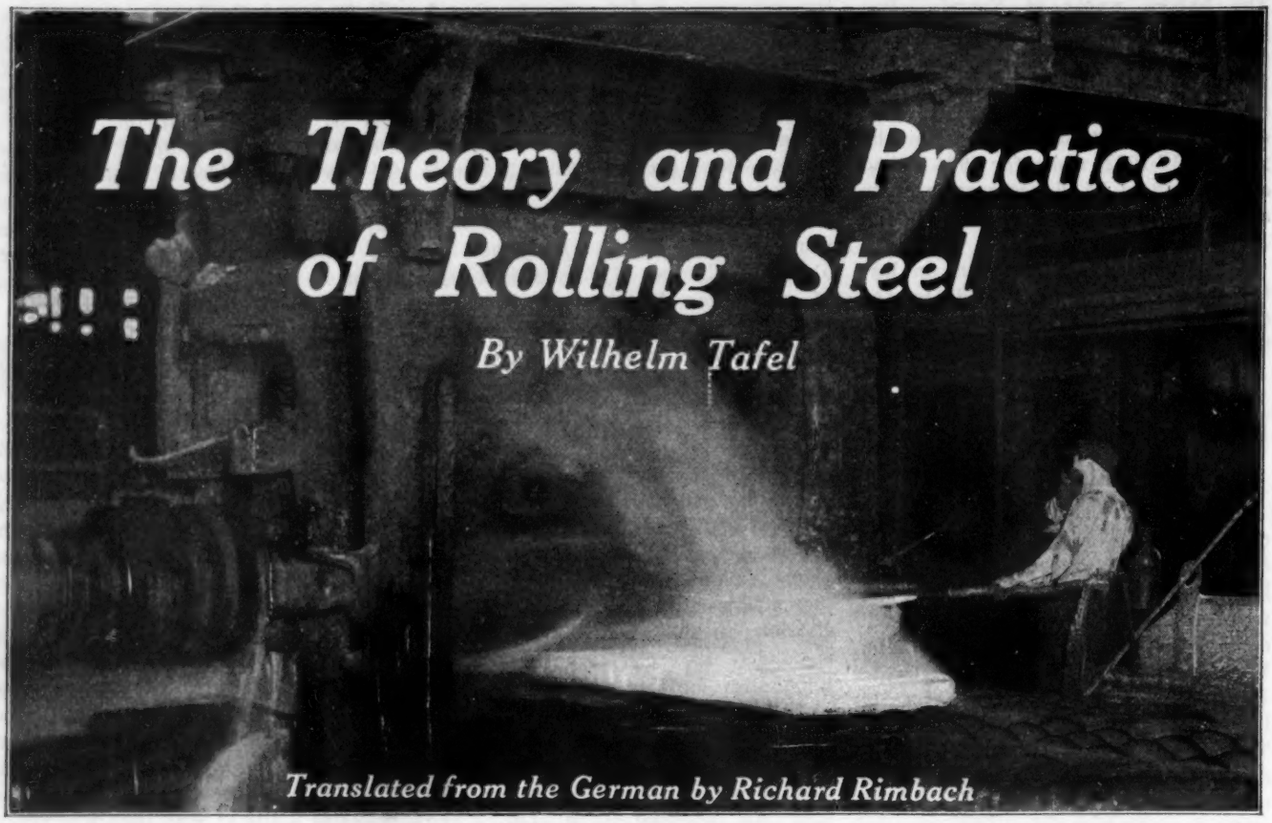
Farm and Factory Leaders To Discuss Taxes

The fourth conference of the leaders in the "Better Understanding Between Industry and Agriculture" will be held in New York Nov. 18 in connection with the twenty-ninth annual convention of the National Founders association. The control of public expenditures and reduction of taxes will be discussed. Speakers will describe the Ohio law that provides that no money can be borrowed for current operating expenses. A current operating expense is defined as an expenditure of money for something that has a life of less than five years. Another provision is that no bond can be issued for longer than the probable life of the improvement purchased, and all bonds must be serial and paid when due.

Bulletin Gives Engine Production Data

The total indicated rating of all the engines and water wheels produced in the United States during 1923 amounted to over 17,500,000 horsepower, according to statistics compiled in a recent bulletin "Engines and Water Wheels, Locomotives and Aircraft," issued by the bureau of census, department of commerce, Washington. The value of these products amounted to some $295,976,027. In the manufacture of tractors and traction engines, Michigan far eclipsed any other state, producing 103,740 of the total of 140,777. Copies of this bulletin can be obtained from the superintendent of documents, government printing office, Washington.

Local and international officers of the patternmakers' union are attempting to establish the open shop in Cleveland, according to the American Plan association of that city. Most of the shops adopted the open shop principle some years ago after a strike for wage advances.



The Theory and Practice of Rolling Steel

By Wilhelm Tafel

Translated from the German by Richard Rimbach

Chapter II

MANY of the considerations found in literature on the rolling process, constitute a colored mixture of ideas and theories. Some ascribe the appearances in rolling to different cooling, through which the single layers of the rolled material pass, according as they are nearer the outside and, therefore, in contact with the cold surface of the roll, or toward the center and, therefore, at a distance from the surface; others emphasize positive tangential forces such as T_1 and T_1' in Fig. 14, if the tangents intersect in front of the plane of rolls MM', and of negative T_1 and T_1' if they intersect behind.

The positive forces draw the material into the rolls, the negative forces press down. The effect of friction between the roll and the material, and the theory of flow is not readily understood. Some consider rolling a pressing process; others a drawing process. In the first case we think of the rolls as two semicircular dies indicated by S and T in Fig. 15, which move up and down and between which the material is pushed slowly at intervals from the rear. Another view is that the process essentially is a drawing of the material between the rolls, considering the single planes *1 1'*, *2 2'*, etc. up to *7 7'* in Fig. 15 as a hole gradually getting smaller, through which the material is pulled as through a drawing die.

Brovot, in his book entitled *Design of Rolls*, compares the action of rolling with the rolling of dough using a rolling pin and with the rolling of ground with a steam roller. These undoubtedly are the nearest to the rolling process, if we consider the movements relatively, that is, the rolled material as being still and the plane of the rolls moving over it. Only in the case of the steam roller the ground to be leveled is a material of infinite thickness to be rolled. The rolling pin has in the board under the dough a fixed surface, while in the same case of the rolling process the thickness of the material is finite and in place of the fixed surface, there is a second lower roll which turns with the same or almost the same speed. Fink had pointed out the fundamental difference from the drawing process, stating the parts of the surface of the rolls, which work similar to the drawing die and reduce the cross-section, are not stationary as is the case with the walls of the drawing die, but move in relation to the plane of the rolls in such a way that they pull in the material.

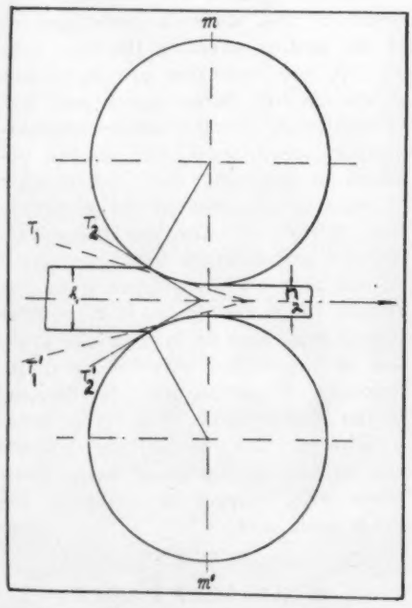


FIG. 14—DIAGRAM OF TANGENTIAL FORCES

Fink in his article on the "Theory of the Rolling Work" in 1874, made detailed calculations of the work of the rolls in the process according to Fig. 15 (pressing the height h_1 to the height h_2) and determined the follow- $A = V \times k \times ln\ n$, in which V is the volume in cubic inches, k the elastic limit in compression at the temperature under consideration and n the elongation. He then investi-

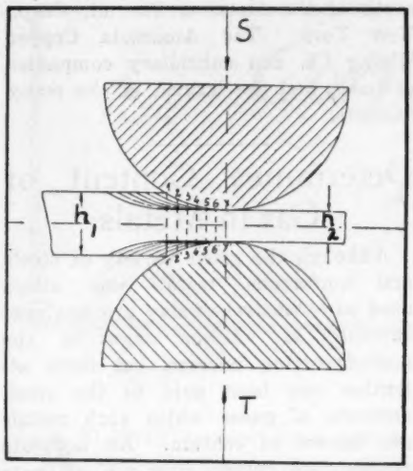


FIG. 15—ROLLING PROCESS AS A PRESSING PROCEDURE

gated mathematically what friction is necessary between the rolls and the material in order that the latter will be drawn into the former against the resistance which the great thickness exerts against the passing through. He arrives at the same expression, if it is assumed that for the whole distance *1 1'* to *7 7'* in Fig. 15 the rolls and material have the same speed.

Fink determined this assumption was not correct, but that between the points mentioned, that is, between entrance and exit, a slip must take place between the rolls and the material.

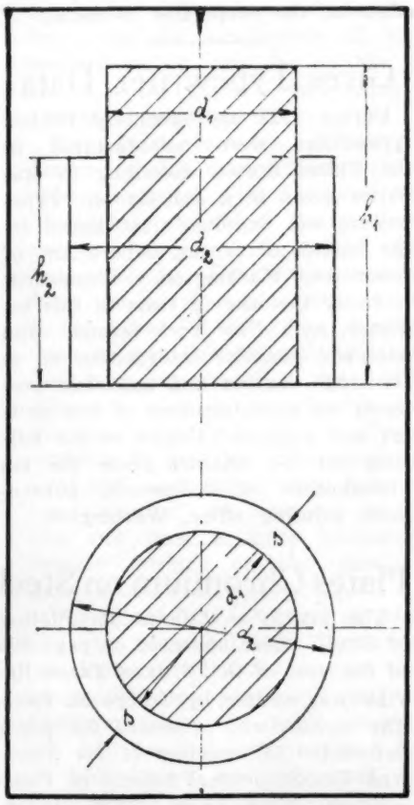


FIG. 16—SHOWING THE AVERAGE PATH IS COVERED BY MATERIAL DURING THE PRESSING PROCESS

He calculated the additional frictional work, which resulted from the inequality of speeds, as 13 to 31 per cent of the actual work of deformation according to the size of the angle of grip and the height of the material. Fink in addition derives mathematically, that this additional frictional work, as well as the portion of bearing friction must be proportionately larger, the smaller the reduction; a fact, Kiesselbach also determined practically by the Puppe investigations. The processes of rolling and that of drawing and pressing differ widely.

In drawing, a round rod first is pointed and then threaded through the hole in the die, which is smaller in diameter than the rod. The end as shown in Fig. 18, is grasped by tongs and the rod is pulled in the direction shown by the arrow. As the rod has a larger diameter to the left of the die than the opening the walls of the

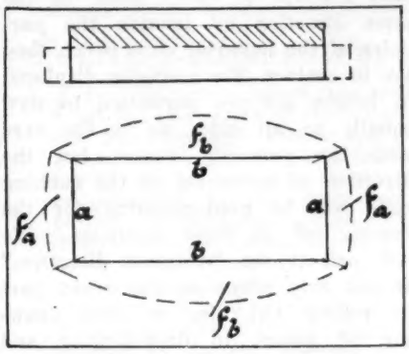


FIG. 17—SHOWING THE UNEQUAL DISPLACEMENT OF MATERIAL

die press on the rod and attempt to press it together. Metal will permit little compression especially if it is wholly dense. As the tongs continue to move, the section to the right of *aa'* will be lengthened and experiences a contraction, as is the case with a rod pulled in a tensile machine. At the same time material is drawn from the rod to the left of *aa'*. In this way it is contracted and can give way to the pressure of the die and slip a distance through the latter. The procedure continues for the whole length of the rod. That the process is one of contraction, rather than one of compression follows from the fact that wire after drawing generally shows a lower specific gravity than before. Seldom, and then only in the first drawings does it increase a small amount.*

In rolling, as far as can be determined, loosening never has been determined. The characteristics in rolling are totally different. The material is not as before drawn out of the core of the rod, but the place *aa'* in Fig. 18 and *7 7'* in Fig. 15 is pressed down, from the cross-section lying to the left, to a greater extent than the cross-section *7 7'* gives it out as will be discussed later.

*See experiments of Seyrich, "Concerning the Influence of the Drawing Process on the Most Important Technical Quality of Steel," Dresden, 1911.

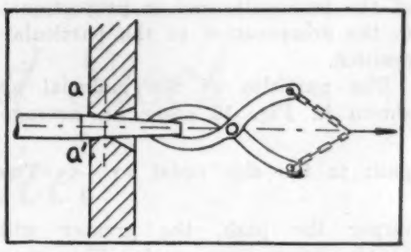


FIG. 18—POSITION OF DIES FOR DRAWING ROUND BARS

Fundamental differences exist between the pressing process and the rolling process. If a cylinder of red hot steel is placed under a steam-hammer of a forging-press and reduced from the height h_1 in Fig. 16, a cylinder of large diameter d, results. In this as in every intermediate step if the unimportant compression work on the material is disregarded, the following must hold:

$$h_1 \times \frac{\pi d_1^2}{4} = h_2 \times \frac{\pi d_2^2}{4} = h_3 \times \frac{\pi d_3^2}{4} = \ldots\ldots\ldots = h \times \frac{\pi d^2}{4}$$

As the volumes remain equal, the cross-section must increase in the same proportion as the height decreases. Plotting the heights on the X-axis of a co-ordinate system and the cross-sections on the Y-axis gives the curve, $daX \times y = \text{constant}$, a hyperbola. The same holds for the pressure curve because the prevailing pressure at any time is equal to $\frac{\pi d^2}{4} \times k$ if k denotes the compressive elastic limit

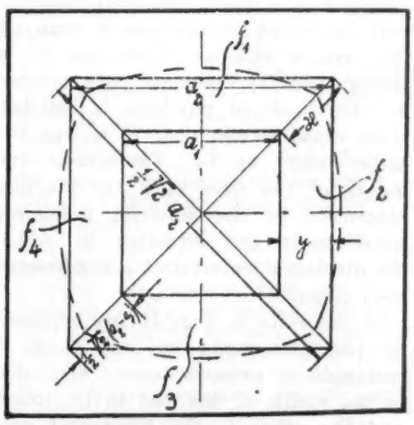


FIG. 19—PRESSING A SQUARE CROSS-SECTION

of the materials, and is proportional to the cross-section at the particular position.

The particles of the material as shown in Fig. 16 cover an average path to the side equal to $\frac{S}{2}$. The larger the path, the greater will be the deformation work. This path is smallest when the circlar shape is retained. With a uniform material, temperature and vertical pressure a cylinder pressed down must again give a cylindrical form. If a square prism is pressed its form is not retained. If this form were retained as shown in Fig. 19 the average path of the particles in the corners would be larger than the path in the center of the sides of the square.

$1/2\sqrt{2\ (a_2 - a_1)}$ exceeds $1/2\ (a_2 - a_1)$.

Here also the smallest amount of

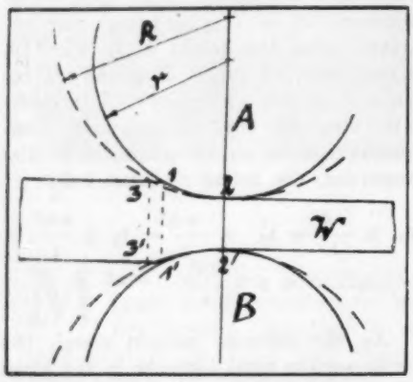


FIG. 20—SPREAD WITH DIFFERENT ROLL DIAMETERS

work is performed. The least resistance is when an equal average path is covered by the particles. The square sides will bend out to the shape shown by the broken lines in Fig. 19. The same amount of material moves out on each side of the square, $f_1 = f_2 = f_3 = f_4$. Rectangular shapes also are subject to change as shown in Fig. 17. With the rectangle $a \times b$, more displaced material will move out on the side b than on the smaller side a. Therefore f_b is larger than f_a; The total path covered by the displaced particles is smaller, than would be the case if f_a was the same size as f_b. Therefore, the length of the sides open for the displacement of the material influences considerably the direction in which the displaced material of a compressed body flows.

If the rolls in Fig. 15 are replaced by two dies going up and down, a rectangle is pressed down. One side is the width of the rod to be rolled and the other is the horizontal projection of the part of the roll circumference which touches the material as depicted in Fig. 16 by arc 1, 7 and 1', 7' respectively. The more material therefore, that is squeezed out on the side in the direction of spread, the greater it is in relation to the other side of the rectangle, or the width, of the rod to be rolled. All other conditions being equal, a rod spreads more, the larger the roll diameter. A larger roll diameter also means a larger contact surface between roll and material, as shown in Fig. 21.

The imaginary pressing procedure previously designated as rolling, is not covered by the regular pressing because the diminution of height is the same all over, while in the case of the rolling procedure it increases from the one to the other narrow side. Fink has pointed out that the pressing plates are stationary, while the roll surfaces move toward the one narrow side of the rectangle. The rolls attempt to carry along in the same direction by friction the particles of the material with which they are in contact. The particles displaced in height are not permitted to flow equally to all sides as is the case with the pressing process, but the direction of movement of the rubbing rolls will be predominating for the flowing off of these particles. We will call it the "assigned direction." It not only plays an important part in rolling but also in deep drawing of plates, in drop-forging and in other manufacturing processes.

Chemical Show Attracts Large Number

Assuming a large place in the tenth exposition of chemical industries, held at Grand Central Palace, New York, Sept. 28-Oct. 3, were a number of manufacturers of iron and steel products. Among these companies were: American Machine & Foundry Co., Bellefonte, Pa.; Barco Mfg. Co., Chicago; C. O. Bartlett & Snow Co., Cleveland; Buffalo Foundry & Machine Co., Buffalo; Cast Iron Pipe Publicity Bureau; Crane Co., Chicago; Electric Controller & Mfg. Co., Cleveland; Erie City Iron works, Erie, Pa.; Fansteel Products Co., North Chicago, Ill.; Victor Hybinette, Wilmington, Del.; William J. Sweet Foundry Co., Irvington, N. J. A large and interesting exhibit on wood distillation was shown by the Cleveland-Cliffs Iron Co., Cleveland, while the Ford Motor Co. displayed a miniature coke by-product plant in cross-section. A number of booths contained products of the International Nickel Co. Hardware plated with chromium was shown at the booth of the Metal & Thermit Corp., New York. The Anaconda Copper Mining Co. and subsidiary companies probably had the largest of the many exhibits.

Determines Content of Gas in Metals

Although the great variety of steels and nonferrous metals and alloys used so extensively today are analyzed carefully at various stages in the manufacturing process, but little attention has been paid to the small amounts of gases which such metals are known to contain. An accurate method for determining the amounts of oxygen and hydrogen in metals has been developed recently by the bureau of standards, Washington. The analysis, which will determine 0.001 gram of oxygen and 0.0001 gram of hydrogen in 100 grams of iron or steel, is made by sealing a sample of the metal inside a fused silica tube, evacuating the tube, melting the sample in a high frequency induction furnace, and collecting and weighing all gases given off from the melted sample.

In the case of steels and cast irons this rather general neglect of gases has been due to the lack of satisfactory methods for their determination, although it was realized that their presence or absence had an important effect on the properties of metal.

Gives Typewriter Data

During 1923 approximately 700,000 typewriters were manufactured in the United States, according to statistics given in a bulletin on "Typewriters and Supplies" just issued by the bureau of census, department of commerce, Washington. Connecticut is easily the leading state in this industry, with New York second. The pamphlet contains information as to the wage earners and materials produced by manufacturers of typewriters and supplies. Copies of the bulletin can be obtained from the superintendent of documents, government printing office, Washington.

Plates Chromium on Steel

The article on "Chromium Plating of Steel," which appeared on page 896 of the issue of Oct. 8, IRON TRADE REVIEW was written by George M. Enos, The author, who presented the paper before the fall meeting of the American Electrochemical society at Chattanooga, Tenn., Sept. 24-26, is instructor in metallurgy at the University of Cincinnati, Cincinnati.

Correlates Iron and Steel Making Practice

By J. E. Fletcher

Part I—Cast Iron

AT THIS moment the cast iron, wrought iron, and steelmaking industries are dependent upon pig iron from the blast furnace as their basis. Direct metal from the blast furnace for castings and through the mixer for open hearth steel possibly is increasing in favor as a means of producing cheap iron castings and structural steel; in the manufacture of such castings and wrought iron as must meet the safety first conditions of the modern engineer, remelted pig iron has not yet been superseded. With the gradual deterioration of reworked scrap the need for good virgin metal in the form of pig iron of dependable chemical and structural analysis is a necessary corrective. It must be remembered that methods for desulphurizing and otherwise chemically improving the composition of scrap ferrous metals may be at the expense of the physical well being of structural constituents.

Two blast furnaces, differing in design and size, using different classes of ores and fuel, with dissimilar driving rates and blast temperatures, may produce pig iron of like chemical analysis. The results obtained from the remelted pig iron, whether in the form of iron or steel castings, wrought iron bars or malleable castings may be and often are greatly different. Can it be expected that the pig iron produced in a small slow working furnace smelting lean ores with cold blast supply shall have the same physical structure as another iron run from a large hard-driven furnace working on rich ores and using a hot blast supply?

During the war, shortage of hematite iron compelled blast furnacemen to charge steel and wrought iron scrap with high phosphoric ores and puddling cinder. In many cases the pig iron analysis approximated that of well known and celebrated cold blast brands of foundry iron but the physical structure of the semisteel type of iron was vastly different from that of the cold blast variety.

The above matter is of fundamental importance and the author, while realizing that a pig iron of given analysis in the hands of a capable iron or steel founder will enable iron or steel of desired chemical analysis to be produced, knows from experience that the physical characteristics of irons produced under different smelting conditions are not alike although the chemical analyses may be similar. The same physical differences are noticeable in the puddled iron produced from two differently smelted irons of similar chemical analyses. Steel products obtained from American washed iron and Swedish charcoal smelted irons of similar chemical composition are unlike in physical properties and parallel differences have been regularly noted in pig irons for malleable processes.

There can now be little doubt that the chief differences lie in the following directions:

1. Combustibility of fuel and rate of combustion per hour per square foot of furnace area at level of maximum combustion.
2. Weight of air supply per pound of fuel burned per hour.
3. Weight of iron produced per square foot of furnace area at maximum combustion level, per hour.
4. Volume of ores or other metal producing portions of furnace burden per cubic foot of gases at mean temperature between level of maximum combustion and furnace top exit—in terms of volume per square foot of furnace area at maximum combustion level per hour. This being a measure of the ore volume passing through one square foot of furnace area per hour during the reverse passage of 1000 cubic feet of gas per hour through the same area.
5. Composition and temperature of gases between level of maximum combustion and furnace top.
6. Porosity and gas permeability factors of fuel and ore burden, involving lump size of ore and coke and porosity of the individual ore and coke lumps. Where high limestone or other flux additions are made the effect of flux lump size must be taken into account.
7. Composition and volume of slag produced, in terms of slag weight and volume per square foot of furnace area at level of maximum combustion, per hour. Mean temperature of working slags and mean thickness of slag on metal in furnace hearth.
8. Mean temperature of molten metal when tapped.
9. Mean time period during which metal is accumulating in furnace

Fourth Exchange Paper

IN THIS paper, which was read at the convention of the American Foundrymen's association at Syracuse, N. Y., Oct. 5-9, is the fourth annual exchange paper to be presented by the Institute of British Foundrymen before the American organization, the author seeks to cover only a few of the related areas in the field of ferrous research and to discuss them in such a manner as will suggest avenues to further thought and research of a practical character. Subjects touched upon may be summarized as:

1. *Influences operating in the production of the common base of all iron and steelworks and foundry processes—pig iron. Temperatures and other effects as responsible for differences in the chemical and structural composition of the blast furnace product. The fracture and its relation to chemical and microstructural analysis.*
2. *Effect of remelting on the primary or pig iron structure and the relationship between the final structure of cast iron, wrought iron and malleable iron and the original pig iron structure.*
3. *Function of working slags and their dominant fluid conditions and composition. The neutral and active conditions of the slags in various ferrous processes.*
4. *Inter-relationships of microstructure in cast iron, wrought iron, malleable cast iron and steels. Stable and unstable structures.*
5. *The scrap problem and the influence of the increasing use of scrap in modern iron and steelmaking.*

The author of the paper, J. E. Fletcher, is consultant for the British Cast Iron Research association, Birmingham, Eng.

Table I

Comparative Data of Furnace Operations

	Furnace No. 1	Furnace No. 2
Iron made per square feet of furnace area at level of maximum combustion (8 feet above tuyere level in No. 1 and 6 feet in No. 2 furnace)	100 pounds per hour	70 pounds per hour
Coke burnt per square feet of furnace area at maximum combustion level per hour	150 pounds	100 pounds
Ore volume passing per hour in terms of cubic feet per square feet of maximum combustion zone area	5 cubic feet	1.3 cubic feet
Hot gases passing each cubic foot of ore per hour. Taken at level midway between maximum combustion zone and stock line	6900 cubic feet at 950 degrees Fahr.	27200 cubic feet at 1050 degrees Fahr.
Mean velocity of burden descent from stock line to tuyere level	3.65 feet per hour 8.5 inches per hour	3 feet per hour 5 inches per hour
Metal rises in hearth at rate of	32 inches 380 degrees Fahr.	19 inches 600 degrees Fahr.
Mean thickness of slag blanket on top of metal in hearth	150 pounds	60 pounds
Temperature of throat gases		
Weight of slag per square foot of furnace area at maximum combustion level per hour		

hearth between tappings, together with mean depth of metal in furnace hearth.

10. Character of various ores, etc., in mixtures and their distribution as charged. Reducibility and carburizing effect on various ores as affected by porosity or fineness of ores and by velocity of ascending gases and their composition and temperature.

11. Height of charge column. Stock line to maximum combustion level. Tuyere level to maximum combustion level. Tuyere level to bottom of furnace hearth.

12. Effect of blast velocity through tuyeres on air distribution. Oxidation in outer ring zones of charge column.

Furnaces Practices Differ

In this paper it is impossible to do more than touch upon some of the points above mentioned but as the problem is of such vital importance to the foundryman, a few brief notes on the differences in blast furnace practice may be of service. Take for example, two blast furnaces making foundry iron of 2 per cent silicon, 1 per cent phosphorous grade; one driven harder than the other, the first making about 6 tons per working hour, the second 3 tons. The blast temperature in the first furnace is taken at 1200 degrees Fahr. and in the second 1000 degrees Fahr. Furnace No. 1 has a hearth 11 feet 6 inches in diameter and a charge column (from tuyere level to stock line) 62 feet high. Furnace No. 2 has a hearth 10 feet in diameter and a charge column 60 feet high. The iron content of the ores in No. 1 averages 25 per cent when calcined while that of No. 2 is 45 per cent. The slag produced per ton of iron in No. 1 is 30 hundredweight, that in No. 2 20 hundredweight; the coke consumption per ton of iron smelted being 30 hundredweight in No. 1 and 28.5 hundredweight in No. 2. From a closer examination of furnace working the comparative data of Table II have been deduced.

To visualize what is happening while the ore is descending from the stock line to the hot zone in the furnace boshes, that is, the level of maximum rate of combustion, it is useful to conceive the iron oxide which is being reduced to metallic iron as in the form of grains of 1 millimeter cube. In furnace No. 1 the lean ore, 24 per cent iron content, contains roughly one grain of iron oxide to 2.5 grains of earthy oxides, the millimeter cube of iron oxide being coated by a 0.25 millimeter thick film of silica, lime, alumina, etc. When the iron oxide is reduced to metallic iron, each 1 millimeter cube of reduced iron becomes surrounded by a jacket of slag forming matter nearly 0.5 millimeters thick.

Similarly in furnace No. 2 each 1 millimeter cube of iron oxide is covered by a thin film of earthy oxides only 0.1 millimeter thick. The reduced iron grain is later covered by a film of slag-forming oxides 0.18 millimeters thick. It is of course impossible to assume that such homogeneity of structure exists in the ore mass but these means of visualization of the disposition of the iron grains amidst the earthy gangue are helpful to the critical student.

Further, as the measurement of the cubic content of average ore bulk shows that the cubic contents of the voids between the ore lumps is approximately equal to the volume of the solid ore grains, the mean thickness of the gas film covering the gangue-covered iron oxide and reduced iron grains is of further interest as shown in Table III. In Table II it will be noted that about 4 times the volume of hot gases sweep past each cubic foot of ore in furnace No. 2 than in furnace No. 1. Hence the gas effect must be considerably more potent when in contact with the thin-covered iron grain in furnace No. 2 than in the case of the thicker covered grain in furnace No. 1.

The preheating of the ore and reduced iron during its descent from the stock line to the fusion zone, level of maximum combustion rate, must be greatest in furnace No. 2, where the escaping throat-gases are 600 degrees Cent. This means that iron reduction takes place higher in the furnace stack in No. 2 than in No. 1. It also follows that the carburization of the iron grains proceeds more rapidly in furnace No. 2 because of the

Table III

Gas Film Thickness

	No. 1 furnace Millimeters	No. 2 furnace Millimeters
Thickness of slag forming oxides covering 1 millimeter cube nucleus of iron oxide	0.25	0.10
Thickness of gas film enveloping the ore grain	0.20	0.15
Thickness of slag forming oxides covering 1 millimeter cube nucleus of reduced iron	0.42	0.18
Thickness of gas film enveloping the gangue covered iron grain	0.24	0.17

Table II

Chemical and Structural Analyses

Approximate Chemical Analysis

	Total carbon	Combined carbon	Graphitic carbon	Silicon	Manganese	Sulphur	Phosphorus
Open grained iron	3.30	0.30	3.00	1.8	1.0	0.08	1.0
Close grained iron	3.30	0.65	2.65	1.7	0.9	0.10	1 0

Structural Composition

	Open grained iron		Close grained iron	
	Per cent of weight	Per cent of volume	Per cent of weight	Per cent of volume
Graphitic carbon	3.00	9.52	2.65	8.52
Phosphide eutectic (C-Fe-P)	14.73	14.45	14.72	14.60
Manganese sulphide	0.22	0.39	0.27	0.49
Pearlite (containing silicon and manganese)	2.83	2.58	42.40	39.00
Silico-ferrite	79.22	73.06	39.96	37.39
	100.00	100.00	100.00	100.00

more ample gas supply, the grains coming into contact with richer gas at higher temperatures than in furnace No. 1. The resulting iron will therefore be higher in total carbon content in No. 2 than in No. 1 for in addition to the richer and hotter gas supply and accompanying higher preheating effect, the burden takes longer to pass through the furnace in No. 2 than in No. 1.

The total carbon content of the iron must obviously correspond with the degree of carburization of the iron grains reduced from the oxides, i. e., the spongy iron, at the time such grains have descended to the temperature level corresponding to the melting point of the carbon-iron alloy produced. If the ore is rich in iron content and is readily reduced, and if the hot gases produced by burning an excess of carbon per unit area at the level of maximum combustion, per hour, raise the temperature of the preheating zone above that level, the fusion level will be raised.

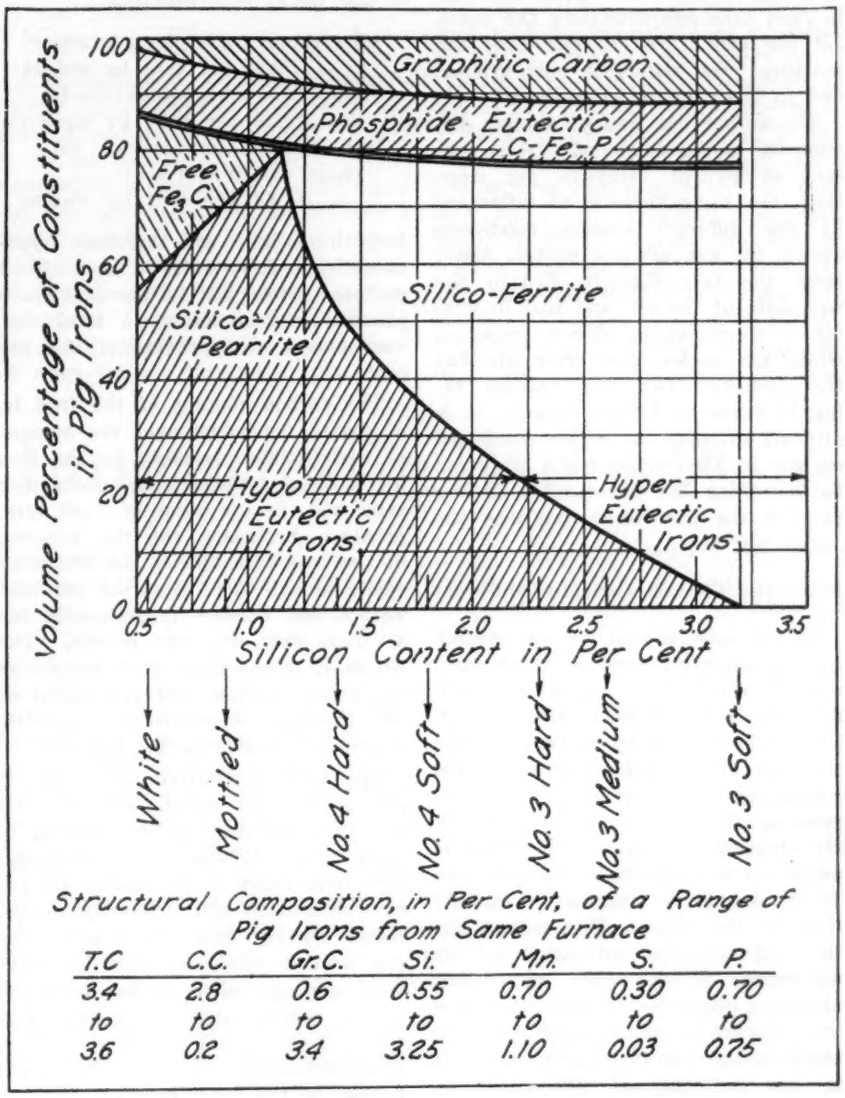
This melting level will be fixed by the proportion of coke to iron in the burden but will vary with the reducibility of the ores or other iron-yielding ingredient in the burden. Thus hematite ore and furnace cinder may contain equal percentages of iron but the first will require less coke per ton of iron yield and the rates of smelting in the same furnace will differ. The hematite ore will be reduced at a higher level than the flue cinder which, as a slag, melts before its iron content is reduced; hence the iron reduced from the cinder is not so highly carburized as that from the hematite. Similarly the iron reduced from a lean ore may descend low into the furnace before it is reduced, carburized and fused. a low carbon iron being the result.

Again in the same furnace the ratio of coke to ore burden may be greatly different while working the same ore. By different rates of driving, the iron produced will correspondingly differ in total carbon content, the level of maximum combustion being thereby altered, the rate of carburization affected and the melting zone level raised or lowered. All these modifications affect the structural composition of the cast iron produced, even though the chemical composition be little different in irons smelted from such different raw materials as flue cinder and lean oolitic ores.

It is to be feared that many foundrymen are ignorant of the difficulties which confront blast furnacemen engaged in the manufacture of foundry pig iron, especially in those countries where the composition of ores is continuously varying. On the other hand the needs of the modern foundryman demand pig iron of good structural composition, apart from the chemical composition, which is not the final index to quality. Chemical analysis is a satisfactory index to the constitution of the products of a particular furnace working on definite lines and using burdens of regular composition and physical structure. However, from British experience, the chemical analysis does not tell the whole story where a furnace is constantly changing its fuel, ores, flux and rate of driving.

The examination of fracture alone is unsatisfactory but there is little doubt that the structural analysis of cast iron is reflected in some measure by the fractured casting structure even as examined by the naked eye for it is an index to that important factor, grain size. In Britain this question of structural or constitutional composition is now occupying considerable attention and the interpretation of the chemical analysis of cast iron in terms of the constituents is being found to be of considerable value. The author has used this interpretation since 1904 and has found it of great service in correlating the chemical analysis with the microstructure. Since the values for specific densities of most of the constituents of cast iron are now available, the composition in terms of the volumetric contents is still more useful.

The application of the method to the composition of pig iron is capable of giving valuable indications to the causes responsible for the differences in chemical analysis, microstructure and fracture characteristics. Fig. 1 gives the structural composition



Structural Composition, in Per Cent, of a Range of Pig Irons from Same Furnace

T.C	C.C.	Gr.C.	Si.	Mn.	S.	P.
3.4	2.8	0.6	0.55	0.70	0.30	0.70
to	to	to	to	to	to	to
3.6	0.2	3.4	3.25	1.10	0.03	0.75

FIG. 1—STRUCTURAL COMPOSITIONS OF A NUMBER OF PIG IRONS PRODUCED IN THE SAME FURNACE

of a range of irons from the same furnace.

A typical illustration may be given of the case of two blast furnaces producing foundry pig iron of similar analysis, the only notable difference in the chemical analysis of the pig irons being the relation of the combined and graphitic carbon contents. The pigs were of the same section size and the total carbon content was in each case approximately the same, 3.3 per cent. Yet in one case the fracture was regularly open-grained and in the other close-grained.

The author has noticed similar differences in the combined carbon content of British hematite pig irons from the same furnace as influenced by the different cooling conditions during the summer and winter. Apart from the fact that in Britain the wet state of the ore and fuel in winter is conducive to slower reduction while the cooler and drier air has the opposite effect, the balance being in favor of higher outputs, it is difficult to trace the higher combined carbon in the winter-made pig iron to any thing but the quicker cooling rate of the iron when run into the colder pig beds.

Fractures Characteristically Different

In the case chosen for illustration the pig irons produced in either summer or winter were characteristically different in fracture as before stated. This is illustrated by Table II. From this structural composition of the cooled pig irons it is seen the decomposition of the iron carbide originally present in the molten metal is much more complete in the one iron (0.30 per cent combined carbon) than in the other. The reason for this difference is not explained by differences in the rate of cooling alone, as might be the case when one iron is cast in metal molds and the other in the customary sand bed. It is clear that thermal influences must be responsible for the fact that, pigs of similar section are of different hardness in similarly constituted sand beds. These thermal differences must have functioned within the furnace hearth at the time of casting and before.

The silicon, manganese, phosphorous and carbon contents in the two pigs being alike, it may be concluded that the hearth temperatures in both cases were alike, this contention being supported by the fact that the casting temperatures were noticeably similar. Therefore, there must have been a difference in the condition of the carbon in the molten metal either immediately preceding or soon after the casting of the two types of pig iron. An examination of the probable molten constitution of the hearth metal is of value.

Assuming that the molten metal consists of the 4.3 per cent carbon and the iron - carbon - phosphorous eutectics in which are dissolved the iron silicide and manganese carbide and sulphide, the molten constituency of the metal is given thus:

4.3 per cent carbon-iron eutectic .....70.95 per cent by weight
Iron-carbon-phosphorous eutectic .....14.72 per cent by weight
Iron silicide, manganese sulphide and iron (free)..... .....14.33 per cent by weight

Both irons here are therefore hypoeutectic, a fully eutectic iron of 1.8 per cent silicon and 1.0 per cent phosphorous content having a total carbon content of approximately 3.5 per cent.

The carbon content of the iron is, of course, dependent upon the amount of carburization received by the iron in its descent through the preheating zone and, in the zone of high temperature necessary for the alloying of the iron with silicon, the iron may easily absorb more than 4.3 per cent carbon and become hypereutectic and as such flow into the hearth. The action of silicon there is to graphitize the excess carbon, and any metal of this character continues to graphitize during the cooling in the pig beds.

The author considers that this is the mechanism which accounts for the low combined carbon content in some irons. Whenever the carburization falls short of producing 4.3 per cent carbon in the primarily melted metal flowing into the hearth, the pig iron is likely to have a lower total carbon and a higher combined carbon content than in an iron produced from metal which has been hypercarburized in the shaft and boshes of the blast furnace.

In actual practice the carburized streams of metal flowing into the hearth must often be mixtures of hypoeutectic iron. In the large hearth obstructed by masses of coke perfect diffusion of the heterogenous components of the liquid metal is inconceivable and some irregularity must be expected in the pigs run from the hearth.

(To be continued)

Electric energy provides 70 per cent of all the power used in manufacturing in the United States. In 1919, the proportion was 55 per cent, and in 1914 it was 40 per cent.

Tack Sizes

Reduced From 465 to 186 Sizes At Washington Conference

The proposed program providing for simplification of tacks, reducing sizes and varieties by 279 and packing weights of tack shipments from 423 to 127 weights, was adopted at the conferences of tack producers, distributors and representatives of consumers held here last week with officials of the simplified practice division of the department of commerce. Sizes and varieties of tacks were reduced from 465 sizes to 186. Definitions as to the methods of measurement also were adopted and it was moved to discourage still further varieties which are classed as obsolete. More than 90 per cent of the tank manufacturing production of the country was represented. The national Hardware Association of the United States and the National Retail Hardware association also had representatives present.

It was declared that the "carpet tack" now is a misnomer, and that the use of such tacks is tending toward more general lines. Other names, it was pointed out, will supplant this trade name for a tack which should serve more general needs. New production methods in automobiles also have had an effect upon the tack trade, it was brought out in the discussion. A number of trade designations were eliminated by the conference, including "swedes cut" and "sweden carpet", these two names being a heritage from the earlier days of American manufacture, when Swedish iron was imported for their production.

The simplification program was developed by the Institute of Tack Manufacturers, and was presented by Herbert S. Holland, of the Shelton Tack Co., Shelton, Conn., and Ellsworth M. Burgess, of the Atlas Tack Corp., Fairhaven, Mass. It was predicted that the simplification program will permit of much smaller stocks in the hands of jobbers and retailers, and that these stocks now may be turned over more rapidly.

The simplified practice recommendations will go into effect on new production on Jan. 1, and for existing stocks, April 1, 1926. A standing committee will consider needs of further revision after the program has been in effect a year. It was voted that the conference go on record as against the sale-by-count method of packing, and also as favoring standard measurement rules for tacks as developed by the bureau of standards,

supplementing eight different methods which the bureau had found to be in use for measuring length of tacks and nails.

Screen Life Varies

The life of punched screen plate used in sizing coal at the mine is variable and indefinite, according to the bureau of mines, Washington. Some screens are discarded in 2 years. Frequently the holes become elongated and will not permit sufficiently close sizing. Poor supports cause some screens to sag until coal no longer will spread out on them. Knockers used to keep the perforations open occasionally wear through the plate. In some plants, however, screen plates have been in constant use for 5 or 6 years.

Ore screen surfaces wear much faster, in some plants but a few weeks or days. A relatively small number of tons is handled on them, especially when they are used to screen hard ores to small sizes. Slight wear on small holes is more serious than wear on large holes, for the proportionate increase of the opening is greater. The closeness of sizing required may determine the life of such screens. Wet material abrades screens more than dry material. Small screens are discarded when permanently blinded.

Surveys Electric Field

Establishments engaged primarily in the manufacture of machinery, apparatus, and supplies employed directly in the generation, storage, transmission, or utilization of electric energy, are reviewed in a recent census report issued by the bureau of census, Washington. This is a 1923 census of manufactures and bears the title "Electrical Machinery Apparatus and Supplies." The pamphlet reports data on wage earners, production quantities valuations for products of the industry, and general statistics.

To Collect Statistics

The collection of statistics relating to mineral resources of the United States will be undertaken by the newly organized division of mineral resources and statistics of the bureau of mines, Washington. F. J. Katz, engineer in charge, will direct the division with W. W. Adams as executive assistant. Mr. Katz will supervise the collection of statistics relating to metals and nonmetals excepting fuels. F. G. Tryon will be in charge of the coal and coke section. The petroleum and natural gas section will be handled by G. R. Hopkins; mine accidents by W. W. Adams; and foreign mineral reserves by B. L. Johnson. At the Salt Lake City, Utah, office will be V. C. Heikes; at Denver, C. W. Henderson; at San Francisco, J. M. Hill; and at Joplin, J. P. Dunlop.

Foundrymen Interested in Bonus Plans

INTEREST in the problem of bonus payments was displayed at the Thursday morning session at the Syracuse meeting of the American Foundrymen's association. B. R. Mayne, Saginaw Products Co., Saginaw, Mich., presented a paper on wage incentives. The author described the system of bonus payment at this plant, where he is plant manager. The basis for payment is 1000 pounds of good castings. The record is obtained from the daily reports of the company and is available within 36 hours after the last casting is poured on each day's run.

In the discussion that followed, Robert E. Belt, secretary, American Malleable Castings association, Cleveland, remarked that the bonus payment can be applied only in production. In the average jobbing shop where the work is varied constantly, the system does not apply. W. M. Thomas, Union Malleable Iron Co., East Moline, Ill., described a system that has been employed at this plant for a month. The plan is based on a perfect attendance for two weeks and a limit of 5 per cent scrap. An increased attendance, lowering of scrap and increased production resulted from this plan. W. M. Marr, Ohio Brass Co., Mansfield, O. outlined a plan used in his establishment. The men are divided into groups and placed under the direction of four instructors who oversee their work. These instructors receive a bonus according to the saving they effect by their supervision. Each man is paid the regular wage and all molding losses are deducted. The molder benefits from this system as the less scrap produced, the more money he receives. Bulletins are placed in conspicuous places showing the standing of each man. This creates a rivalry among the men to turn out the best work. Don Reese, Whiting Corp., Harvey, Ill. gave particulars of a bonus system that is working out favorably at the Whiting plant.

Discuss Rapid Annealing

The paper on the effects of some modifications of a rapid annealing method on the physical properties of malleable iron by Anson Hayes, E. L. Henderson and G. R. Bessmer, Ames, Iowa, brought up some discussion as to the effect of high temperatures on malleable iron. Fred L. Wolf, Ohio Brass Co., and L. J. Kelly, Fort Pitt Malleable Iron Co., found that in annealing castings of thin section in muffle furnaces the short annual gives good results.

The next papers, "One of the Causes of Variations in Rates of Graphitization of White Cast Iron" by Anson Hayes and H. E. Flanders; and "The Catalysis of the Graphitization of White Cast Iron by the use of Carbon Monoxide, Carbon Dioxide Mixtures When Applied Under Pressure", by Anson Hayes and G. C. Scott, dealt with the effect of these gases on the annealing of white iron. H. A. Schwartz, National Malleable & Steel Castings Co., Cleveland. in a written discussion objected to the term catalysis. Mr. Hayes defended the use of the term by calling attention to two recognized forms of catalysis reaction and since carbon and carbon monoxide are present, he affirmed this action is catalysis. Enrique Touceda, American Malleable Castings association, Albany, N. Y., agreed with the authors on this point. With reference to the work of Schank on equilibrium systems, Mr. Hayes said that Schank's work was done on pure iron-carbon system while that described in the paper refers to white iron which is a different compound. If Schank's results were to be applied to the white iron system, the results would be against the accepted theories of physical chemistry because the gases would then travel against their own pressure gradient.

Enrique Touceda gave the report of the committee on malleable iron, suggesting that a yield point of 30,000 pounds per square inch, determined by the drop of the beam, be added to the present specification. He also stated that the American Society for Testing Materials recommends this addition to its specifications.

Large Uses of Steel In Small Ways

WHEN you sit down in the dentist's chair and he inspects your molars, he selects a drill, fits it into a chuck on the end of a flexible, round, cordlike device connected with a motor and proceeds to investigate the interior of a tooth. The drill not only is inserted in the tooth but it is rotated at high speed and cuts the tooth substance. Between the motor and the drill is something that transmits the rotary motion. Yet the connection appears to the eye no more capable of such a feat than a piece of rope.

When you take your place in the barber's chair for a pleasanter operation, that of having your hair trimmed or bobbed, the tonsor picks up his clippers, which are connected with a similar flexible cord, presses a switch and the clippers start action and clear away the hair as by magic.

When you drive your Ford or Rolls-Royce the speedometer on the dash is connected with the spur gear on the front wheel by a length of spiral tube of some metallic substance which appears immovable. Yet the speed of the wheel is transmitted to the speedometer indicator by something on the inside.

In the industrial shop portable tools for drilling, cleaning, grinding and other operations where a whirling motion is neeeded, one will see the workman handling a tool connected to a motor by a flexible length of tubing that looks like an armored hose. In it is something that transmits the power from motor to tool. While the interior unit of these flexible shafts, as they are called, may differ somewhat in their construction, they are essentially the same, two or more layers of steel wire wound spirally, each layer in a reverse direction and under such tension as to produce a shaft of great strength to transmit power and yet sufficiently flexible to make a considerable deviation from a straight line without a kink and without interfering with a smooth delivery of power. In fact they can be operated in compound curves and in circles of quite small diameters, small shafts being capable of transmitting power when bent into a circle 3 to 4 inches in diameter.

In an early day a mechanical clipper for shearing sheep was devised in which sections of steel shaft alternated with strong helical springs, which allowed the power line to be bent. This gave rise to the idea of the flexible shaft, which now is in use in myriad ways, wherever it is necessary to use a movable tool and drive it by power.

Steel wire of special toughness and spring temper is used in various sizes. It is coiled helically under tension, each succeeding layer being coiled in the opposite direction. Several strands are coiled at the same time, making a band of wire following about the spiral. The ends are brazed to prevent uncoiling as the tension to which the wires are subjected in coiling would cause them to spring apart. In cutting a length from the shaft the wires are brazed before the cut is made. A brass or steel ferule is fixed to each end and the shaft then is encased in a tube formed of a flat wire spring or helix over which two layers of yarn are knitted, this woolen coat being shellacked and baked in several layers and then polished. In heavier shafts a spiral metallic tube is provided to protect the rotating shaft and act as a runway or guide. One of the most conspicuous and interesting successes of flexible shaft is in its application to the cleaning of curved boiler tubes, the first experiment having been conducted on the S. S. LEVIATHAN during the period of her renovation at Newport News. Cyl-

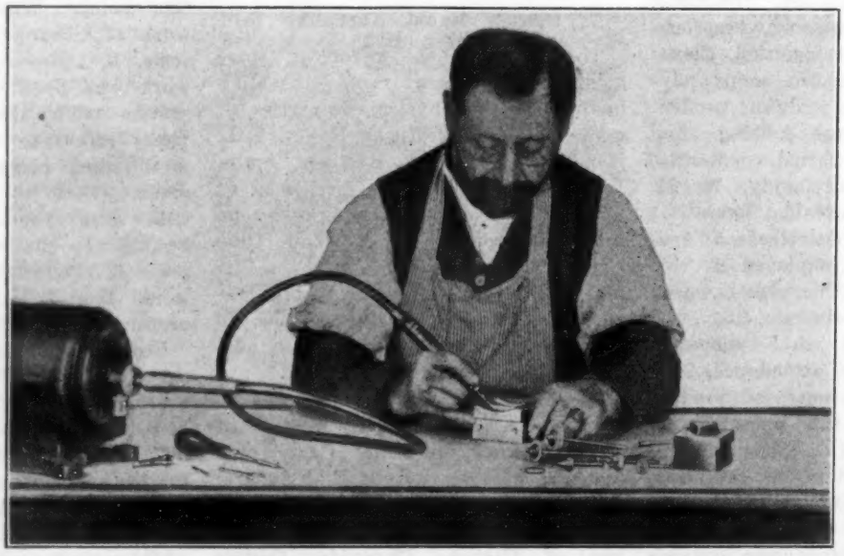
(*Concluded on Page* 1010)

Flexible Shaft

THIS is the forty-ninth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

The first article on "corsets" appeared Nov. 22, 1923. Other articles appearing fortnightly since are:

Pins	*Razor Blades*
Cotton Ties	*Pens*
Toys	*Steel Wool*
Spinning Rings	*License Plates*
Card Clothing	*Hypodermic Needles*
Tie Plate	*Shoe Steel*
Tacks	*Crushed Steel*
Knives and Forks	*Skates*
Surgical Instruments	*Needles*
Fence Posts	*Phonograph Needles*
Eyeglass Cases	*Golf Clubs*
Fishing Tackle	*Mechanical Pencils*
Dental Drills	*Burial Caskets*
Pocket Knives	*Telephones*
Rat Guards	*Radio Towers*
Snap Fasteners	*Brushes*
Paper Clips	*Electric Bells*
Steel Vests	*Bookbinder Wire*
Electrical Conduit	*Sucker Rods*
Radiator Furniture	*Watch Hands*
Notebooks	*Steel Furniture*
Metal Beds	*Highway Markers*
Bolts and Nuts	*Camp Cots*
Metal Lath	



FLEXIBLE SHAFT CAN BE BENT IN CIRCLE

Editorials

Foundry Industry Looking Up

FOUNDRYMEN who attended the meeting of the American Foundrymen's association at Syracuse last week witnessed an impressive demonstration of the strong resources and high morale now enjoyed by the castings industry. The meeting, which was the twenty-ninth in the history of the association, showed conclusively that the foundries of the country are more prosperous than they were a year ago.

The exhibits at the state fair grounds reflected the enterprise of the manufacturers of foundry equipment. If one could compare last week's show with that in Atlantic City in 1915, he would be amazed at the progress indicated in the brief span of 10 years. Production molding has been almost revolutionized by the introduction of sand, mold and casting handling apparatus, and the electric furnace has advanced from a curiosity to an important, trustworthy melting medium. Cleaning room practice has been improved in many ways and practically every foundry operation has undergone a change for the better.

Attendance is always a good criterion of the worth of a technical program. This being true, the papers and discussion at Syracuse were of unusual merit, otherwise hundreds of foundrymen would not have risked catching cold in the chilled air of the meeting rooms to hear and participate in the program. The attendance at the sessions on cost accounting and sand research was convincing evidence of the interest being taken by foundrymen in these phases of the association's work. It showed that in promoting research on problems directly affecting the industry, the association is doing an important work that is recognized by all foundrymen.

Standardizing Steel Barrels

AS AN example of standardization in manufacture in accordance with the principles expressed by Secretary Hoover, the progress made in the steel barrel industry would be difficult to surpass. This industry now operating at about 45 per cent of capacity is consuming approximately 120,000 tons of steel annually. The industry had its greatest growth during the war, and over expansion brought after-war regrets. A great part of the equipment became idle, and to add to this, standardization has resulted in relegating much of the remaining equipment.

The manufacturers, of whom there are 36 in this country, co-operated for standardization in 1924 and began operating under the new plan in January this year. The number of types was reduced from eight to five, and the number of sizes from 103 to 24.

Now as for results: In the first five months of this year 84.04 per cent of the steel barrels manufactured were of the standardized character; 7.57 per cent substandard, and 8.39 per cent obsolete. These percentages represent the output of the 24 leading manufacturers represented in the Steel Barrel Manufacturers' institute.

Demand always will persist for certain kinds of barrels off-standard, but with the progress shown so far by this industry it is not too much to infer that practically the entire product will be standardized in the near future, in accordance with the judgment of producers, consumers and the department of commerce.

Tariff Keeps Out of Politics

THE tariff question has presented many facets in the past two years, not the least of which is the tendency toward self-elimination from politics.

Consider the iron and steel phase. Despite determined efforts by domestic producers to stem the tide, foreign iron and steel has made great inroads in New England and along the South Atlantic, Gulf and Pacific coasts. Reaching in from the Gulf Coast the band of penetration is as distinct as the chill on an iron car wheel.

Domestic producers and distributors vainly have sought additional protection through the anti-dumping and flexible rate provisions of the current tariff law. The administration at Washington is not disposed to tinker with the tariff and give the minority party an issue it so badly needs. Nor are there any indications at this time that the tariff will figure seriously at the coming session of congress.

It cannot be denied that foreign competition has benefited consumers. Detroit this summer bought 25,000 tons of cast iron pipe fully $100,000 cheaper than if an importer of French pipe had not been on the scene. Along the Gulf Coast steel bars are coming in $14 to $15 per ton under the domestic price. The use of French, German or Belgian reinforcing bars in building a mile of 18-foot concrete road effects a saving of about $175.

The producer and the distributor of domestic

iron and steel feel the pinch but numerically they are far inferior to consumers. To the great bulk of population living several hundred miles or more back from the seacoast the tariff recently has become an academic question even at election time. No cast iron pipe is made at Detroit, taxpayers have been saved $100,000, and it is difficult to prove that the diminished buying power of labor at southern pipe foundries will reduce its purchases of Detroit-made automobiles.

Unless the Democratic party gains control of congress in 1926 the tariff question seems dead until the presidential election of 1928, and even then it will probably require extraordinary efforts to arouse enthusiasm. Taking the tariff out of politics has long been held up as an ideal, and for three or four years at least it may be consummated.

Giving Business a Square Deal

WITHIN the last six months nearly three score complaints against business concerns of alleged violations of the antitrust laws have been abandoned by the United States department of justice. This was done after costly inquiries by the department's investigators had disclosed that no violations of the laws were involved. Publicity was given a number of these complaints, and in various instances the effects of the innuendoes remain, despite lack of evidence to back the charges. A number of these cases had to be conducted on the basis of unsubstantiated complaints.

Valuable time was consumed in the pursuit of such inquiries inspired by those who tremble at the thought of power in the hands of organized legitimate business. Consequently, the statement by Assistant Attorney General William J. Donovan, in his annual report, that in the future the department will not pursue unsubstantiated complaints, such as tend to lead business into a state of spiritual darkness and usually end in nothing definite, is refreshing to many groups of enterprise that have been hindered in the past.

Production Should Fulfil Prophecy

IRON and steel production history of 1925 has paralleled closely that of 1924. In the case of both pig iron and steel ingots, the low points were reached in July and were followed by two months of rising operations. It is to be observed, however, that the recovery of 1925 is at a considerably lower rate than that for last year. This is true because the midyear slump in production of 1925 was much less severe than in 1924.

During August and September of this year production of pig iron increased 5.5 per cent, as compared with 18.1 per cent during the same period of last year. In September the average daily rate was 90,862 tons per day; one year ago, it was 68,454 tons. The 1925 rate, therefore, is better by 32.8 per cent. Steel ingot production during August and September showed a gain of 12.9 per cent. The improvement of the corresponding period of 1924 was 46.5 per cent. But during September, ingots were being made at the rate of 134,342 tons per day, against 108,755 tons per day in September one year ago. The 1925 production was better by 23.5 per cent.

With the business horizon so clear as it is at present, production should remain on a high clip for the remainder of the year. So far it is considerably better than last year and not far short of 1923. Pig iron during the first nine months has been made at a rate 17.5 per cent better than for the first three quarters of 1924 and 12.9 per cent less than in 1923. Steel ingot output shows an improvement of 20.5 per cent over last year and only 4.4 per cent below that of 1923. Thus 1925 bids fair to fulfill the early prophecy of a great production year.

What Our Readers Are Thinking

How To Negotiate

MUCH of large business is negotiated. Many of the biggest commercial transactions result from discussions between two or more persons, dealing at arm's length, having no fixed prices or exact basis for measuring or valuing, and depending entirely upon reaching an agreement which is mutually satisfactory, or at least acceptable. Neither side is under moral obligation to expose what is in the mind as an ultimatum or maximum. In such cases there is no reason for disclosure of the mental operations, though of course there can be no justification for misrepresentation or fraud of any kind. Here is opportunity for discretion and sagacity. A wise father used to say to his sons: "Remember as you go through life every man you meet in business is a little smarter than you." This idea is worth remembering.

The average man talks too much, especially if he has a good command of language. It is well to let the other man talk half the time. Each one is trying to "size up" the other before naming figures or stating final conclusions. "A wise man keeps a close mouth." In an extended discussion the experienced and wise man, if he is a good listener, is able to determine with considerable accuracy, something of what is in the mind of the other man. One should carefully weigh every word that is uttered by oneself and by the other person as well, and in doing so can also form an intelligent opinion of the integrity of the other and the reliability of a statement that the offer made is the "last dollar" that will be paid or accepted, as the case may be. —E. H. GARY.

In address "The Science of Business," New York University, Sept. 21.

The Readers' Page

Vol. LXXVII, No. 16 IRON TRADE REVIEW Oct. 15, 1925

Study Ways for Improving Pig Iron

BLAST furnace operators have been giving more attention to structure and other qualities of their product in addition to those indicated by chemical analysis. For some time it has been well understood that there are certain desirable characteristics to be attained for the benefit of foundrymen besides those revealed by microscopic examination or chemical analysis. Two or more samples of iron similar in these respects have shown varying properties when melted in the foundry. What these difficulties are, and suggestions for a line of research by pig iron producers are set forth in an article on page 967 of this issue of IRON TRADE REVIEW. This is from a paper by J. E. Fletcher, past director and consultant of the British Cast Iron Research association. It created much interest and discussion at the convention of the American Foundrymen's association in Syracuse.

Syracuse Meeting of A. F. A. Reported. Page 999.

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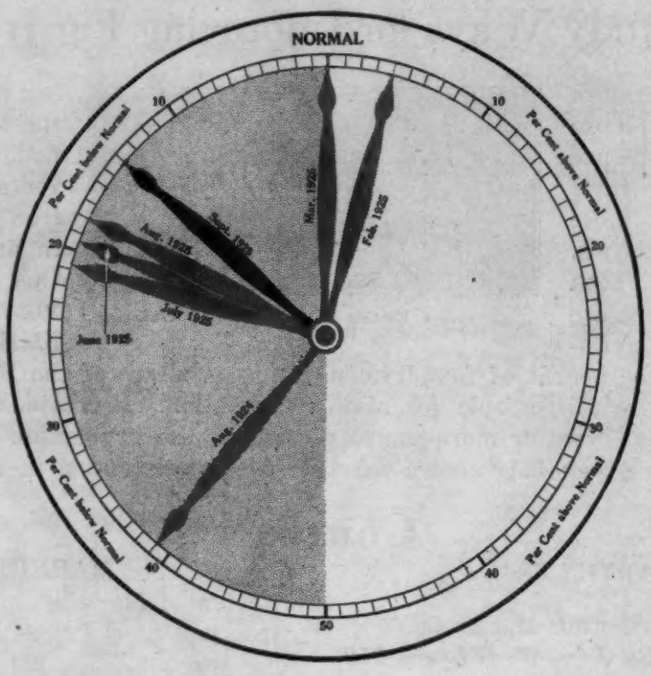
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now lower than the normal point on the dial.

Steel Trade Gives Encouraging Signs

By JOHN W. HILL, Financial Editor

BUSINESS has been looking to the iron and steel industry for fundamental signs of encouragement and it has not looked in vain. Two important basic indicators of the industry are pointing emphatically toward further expansion and improvement of trade. These two indexes are the Blast Furnace Business Dial and the record of unfilled orders of the United States Steel Corp.

SEPTEMBER brought an increase of 204,494 tons in bookings. This not only was the first gain since February, but it was more than double the most optimistic of forecasts. Some slight slackening in the rate of shipments may have occurred during the month but the deep significance of the increase lies in its indication of larger consumptive demand, and the growing tendency for users to place orders for future delivery.

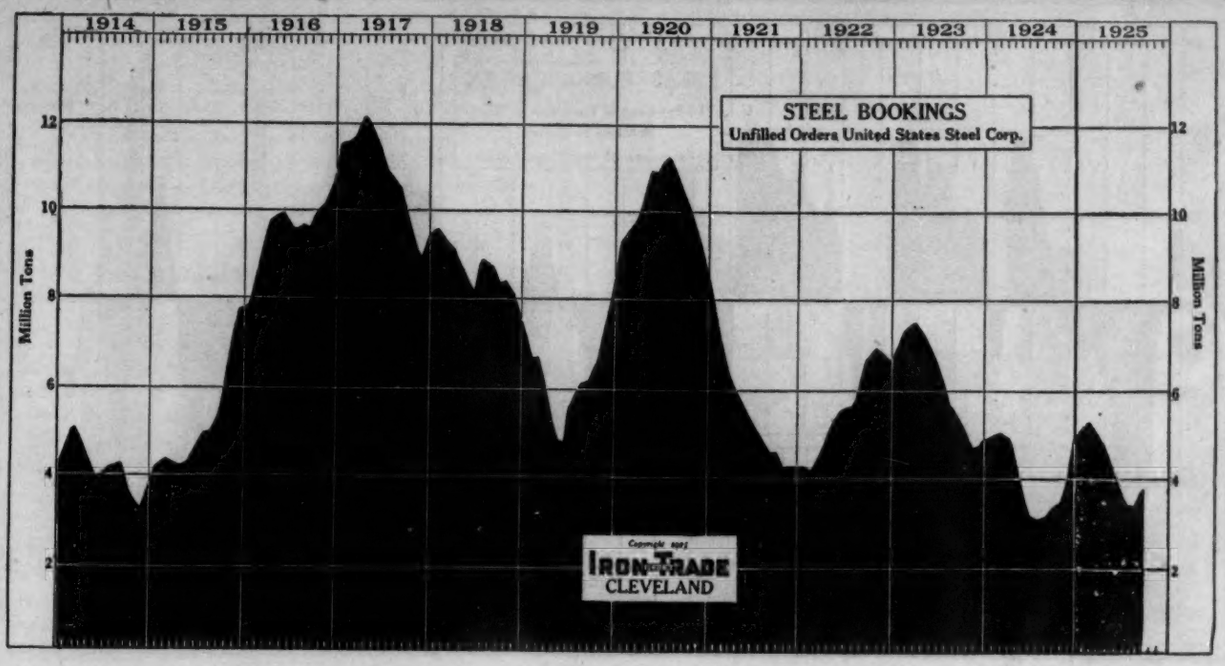
THE rise in orders is full of meaning for another reason. It indicates that prices have struck bottom for most products. Consumers appear satisfied that lower levels are unlikely and that any other change may be upward. The accumulation of a substantial volume of unfilled orders is the one development essential to make higher prices a reality.

EQUALLY interesting is the movement of blast furnace activities. The number of furnaces in the country is 387 and 200 of these were active at the close of September, a net gain of eight in a month. This was 51.6 per cent of the total against 49.2 per cent one month before and a theoretical normal of 60 per cent. One year ago the index stood at 42.3 per cent.

THE black hand of the Blast Furnace Business Dial, therefore, stands 14 per cent below normal against 22 per cent below normal at the low point in July. The production of iron and steel is rising steadily but not so rapidly as to push ahead of demand. According to the reading of the Index, trade is still in the era of expansion and the end of the stock market bull advance is not yet at hand.

NEITHER the Blast Furnace line nor the unfilled orders record is subject, in any important measure, to seasonal fluctuations. Their swings conform more nearly to fundamental movements of the trade cycle. Therefore, current forecasts of these indicators carry a significance that is beyond mere improvement incident to the autumn season. Business in fact has the impetus of both seasonal and basic gains.

The Business Trend

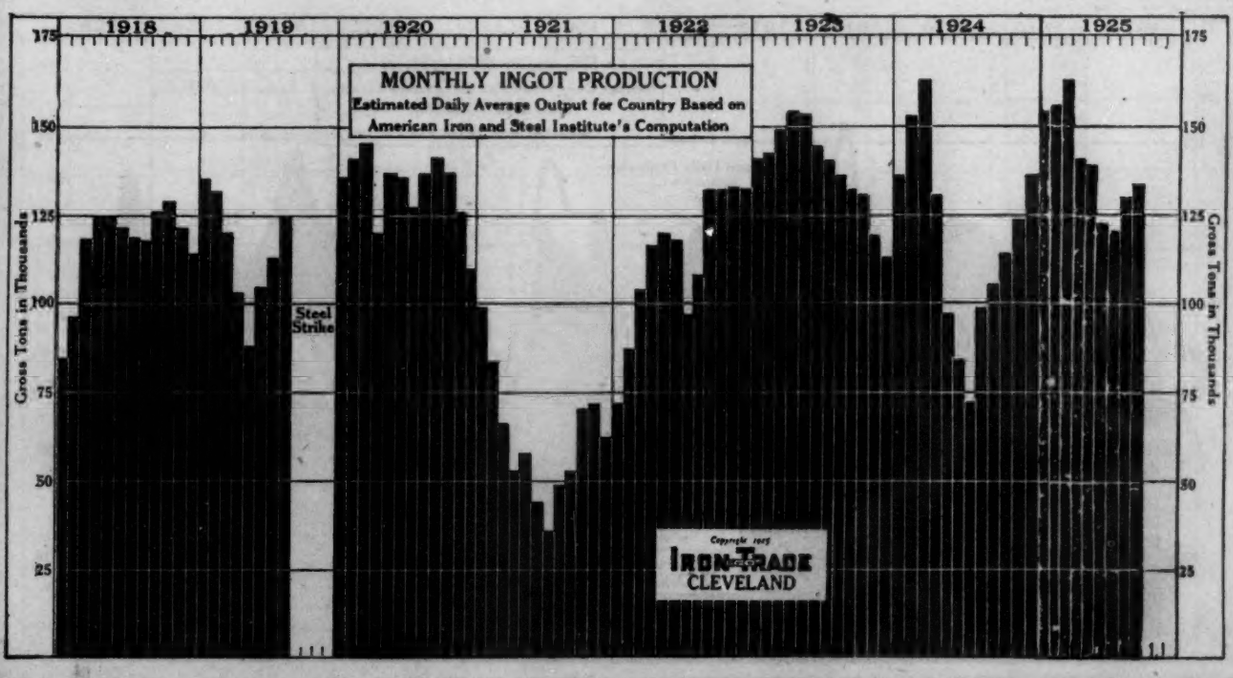


Unfilled Orders

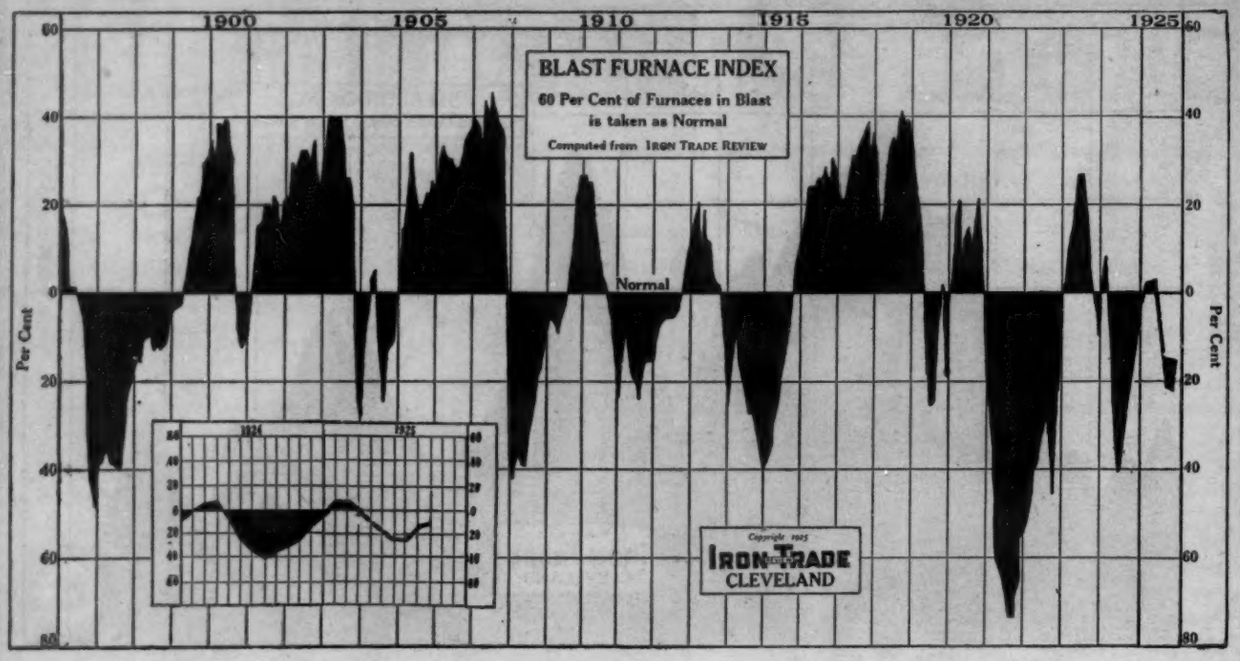
FOR the first time since February unfilled orders of the United States Steel Corp. show an increase at the end of September. The increase was 204,494 tons, a gain far in excess of all forecasts. It brought the total to 3,717,297, the highest since May. The high record for the year was the 5,284,771 tons on Feb. 28. Increased orders reflect the substantial improvement in consumption of iron and steel and indicates that buying for future delivery is increasing. It also signifies that the price level has struck bottom.

Ingot Production

SEPTEMBER brought a small increase in the production of steel ingots with a culated output for the month of 3,492,904 tons against 3,424,034 tons in August. The daily production was 134,342 tons against 133,694 tons in August. For the year to date production of ingots has been 32,410,000 tons compared with 28,000,000 tons in the same period of 1924. The year's record of ingot output promises to come within striking distance of the highest record of all time which was in 1917 when 43,619,000 tons were made.



The Business Trend

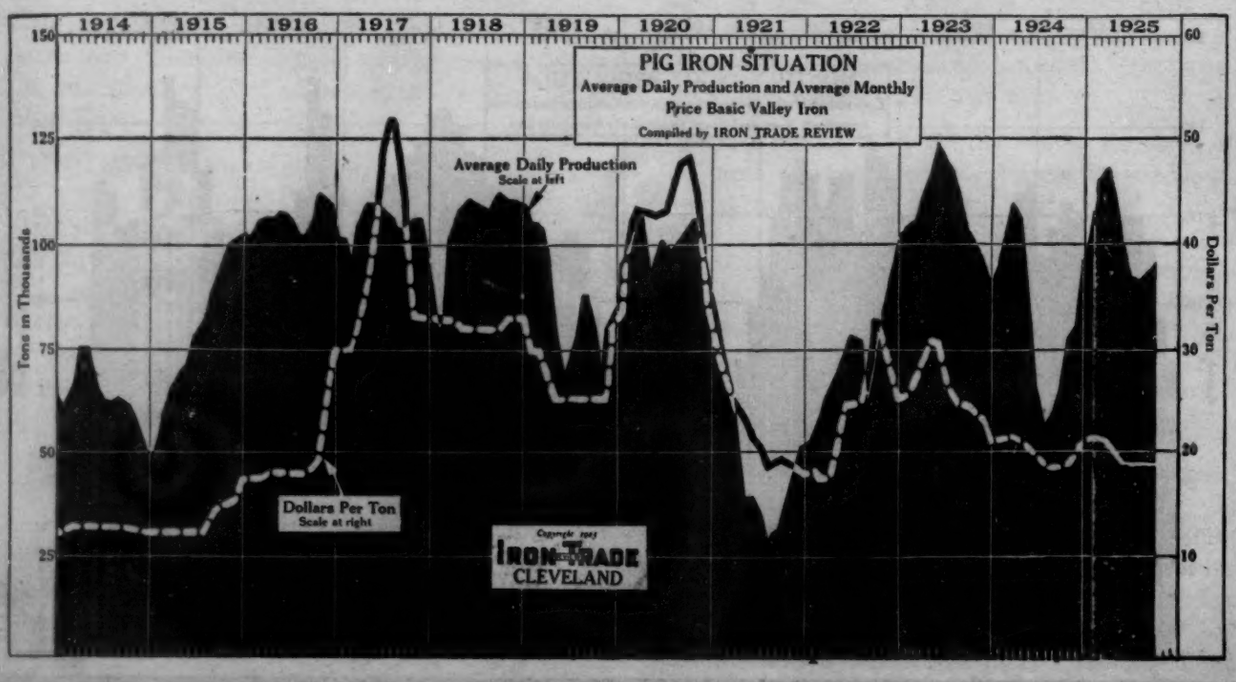


Blast Furnace Index

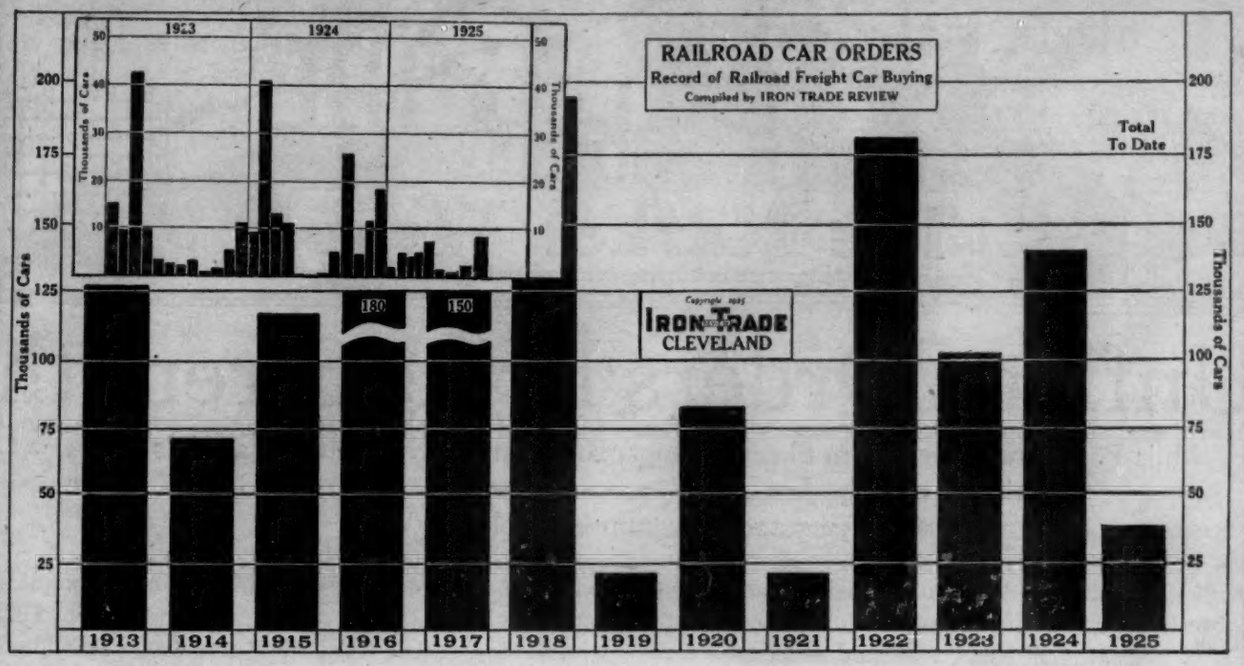
AT THE close of September there were 200 blast furnaces in operation in the country. This was a net gain of eight over the number active one month before. Since July there has been an increase of 12 furnaces in operation. There are now 387 furnaces in the country and of these 51.6 per cent are active, compared with the theoretical normal of 60 per cent. The blast furnace index, therefore, is 14 per cent below normal compared with 18 per cent below normal one month ago.

Pig Iron Production

SEPTEMBER brought gains both in production of pig iron and in market quotations for pig iron. The daily average output during the month was 90,862 tons compared with 87,328 tons in August, and 68,454 tons in September, 1924. In September pig iron production was made at the rate of 33,200,000 tons as compared with the rate of 31,800,000 tons in August. The monthly average price of basic iron in September was $18.25 a ton compared with an average of $18 a ton in August.



The Business Trend

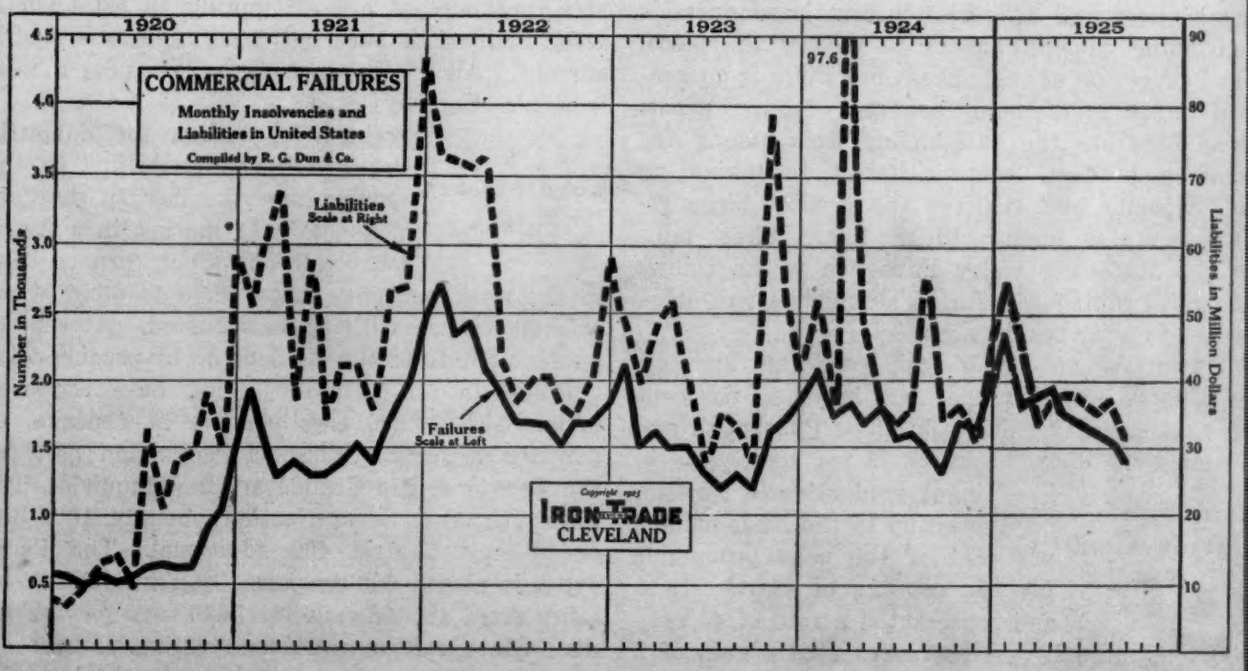


Railroad Car Awards

FOR the first time this year September brought evidence of quickening purchases by the railroads. During the month, orders for 7905 cars were placed and this was the largest number for any month of 1925 to date. It compared with orders for 2875 cars in August but it was less than the 27,630 cars placed in the same month of 1924. For the nine months to date, railroads have purchased 37,395 cars against 108,496 cars in the same period of 1924, present indications are for further expansion in purchases.

Commercial Failures

DURING each month since last April there has been a decrease in the number of commercial failures in the United States. During four of the last five months there have been reductions in the volume of liabilities involved in the defaults. September total of insolvencies of 1465 was 37 per cent below the year's maximum in January. It was the smallest number for any month since September, 1924. Liabilities totaled $30,700,000 and were the smallest for any month since September, 1923.



Unfilled Orders Bring Strength

Mills Post New Advances in Sheets, Hoops, Bands and Strips—Raw Materials Reflect Situation with Coke Jumping Because of Domestic Demand—General Buying and Consumption Hold Up Well

GROWING order books are giving further impetus to efforts of producers to advance prices of finished iron and steel above recent highly competitive levels and some measure of success is resulting. Sheets, hoops, bands and strip steel have been the chief objects of attention the past week. The substantial increase in unfilled orders reported by the Steel corporation for September has served to emphasize the better basis for strengthening prices. The raw materials have caught up some of this same general movement. Pig iron again has sold higher especially for future delivery, scrap has firmed up after its recent slump while the coke market, due to special influences, has soared.

The marked characteristic of the demand for steel still is its steadiness from week to week with some inclination to increase. The gradual falling back of mill deliveries in certain products is continuing causing buyers to modify the piecemeal supplying of their needs but there is no general effort to discount expected future needs. Steel bars are the outstanding item among the common products coming closest to taking up full capacity and register the present large requirements in manufacturing lines. Sheet mills in the Mahoning valley have five weeks rolling ahead. Leading makers of automobile rim stock are sold up for two months.

Operations are being pushed up step by step. In Chicago territory they will be at 80 per cent of steel capacity this week. The Pittsburgh and Youngstown districts are at 75 per cent.

Output Gain Is Small

Steel ingot production in September moved up to the basis of 83.2 per cent of the peak production for the country of March, 1924, and represented a rate of 41,780,000 tons annually. This represented a gain of 2 per cent over August and 13 per cent over July. Production for the first three quarters of the year was 20.5 per cent ahead of the corresponding period last year but 4.4 per cent behind that of 1923 when the greatest total since the war was shown.

Prices Are Advanced

After weeks of ragged conditions, the sheet market appears to have reached a firmer footing. The American Sheet & Tin Plate Co. effective Oct. 11 advanced galvanized sheets $2 per ton to 4.30c, Pittsburgh, and blue annealed by the same amount to 2.30c. Mahoning valley and other sheetmakers have followed this lead. Some have included black sheets to a new level of 3.15c. Independent mills have raised their quotations on hoops and bands to 2.50c, Pittsburgh, and on hot-rolled strips to 2.30c. These changes virtually are reaffirmations of advances of $2 a ton made several weeks ago which did not hold. The larger producers of structural shapes are attempting to establish a 2.00c Pittsburgh base but lower figures are still current. Alloy steel makers have issued a new schedule effective Oct. 12.

Coke Market Jumps

A rush of orders for domestic coke from the East, due to the anthracite strike, has put the Connellsville coke market in a feverish condition. Spot furnace coke in the week has gone from $3.75 to $5.50, Connellsville ovens, with $6 now quoted. At central western points $8.50 was done on by-product coke.

Prospects for railroad buying have appeared better with 10,000 cars pending at Chicago of which 2000 for the Missouri Pacific and 1200 for the Denver & Rio Grande are new inquiries. The International & Great Northern bought 1000 and the Illinois Central 400 additional. The Pennsylvania placed 6000 repairs. An interesting inquiry from abroad calls for 5640 cars for the Indian State railway. Chicago estimates rail ortons near placing.

This turn of the coke situation has put pig

iron producers in a more uncertain frame of mind as to what they should quote for first quarter for which there is a growing inquiry. The American Radiator Co. has been the buyer of 50,000 tons of iron for first quarter for its various plants and on some of this tonnage 50 cents advance was paid. The Buick Motor Car Co. is in the market for 14,000 tons additional for this year.

An unchanged figure is shown this week by IRON TRADE REVIEW composite of fourteen leading iron and steel products. The general market is registered at $37.43.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Oct. 14, 1925	Sept. 1925	July 1925	Oct. 1924
PIG IRON				
Bessemer, valley, del., Pittsburgh	$21.26	21.01	20.76	21.76
Basic, valley	18.50	18.25	18.00	19.00
Basic, eastern del., eastern Pa.	20.50	20.50	21.25	20.00
*No. 2 foundry, del. Pittsburgh	20.76	20.51	20.26	21.26
No. 2 foundry, Chicago	21.50	21.10	20.30	20.50
*Southern, No. 2, Birmingham	19.00	18.50	18.00	17.50
*Southern Ohio, No. 2 Ironton	19.50	19.50	19.00	20.00
**No. 2X, Virginia furnace	23.00	23.00	23.00	24.50
**No. 2X, eastern, del. Phila.	22.26	21.86	21.26	21.36
Malleable, valley	19.00	18.75	18.50	19.50
Malleable, Chicago	21.50	21.10	20.30	20.50
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	20.26	19.86	19.76	20.76
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	5.00	3.45	2.80	3.00
Connellsville foundry, ovens	5.00	4.20	3.75	4.00
SEMIFINISHED MATERIAL				
Sheet bars, open hearth, Youngstown	33.50	34.25	33.80	36.65
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	35.00	37.20
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	36.60
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	1.95	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.00
Steel bars, Philadelphia	2.27	2.27	2.32	2.32
Iron bars, Philadelphia	2.17	2.12	2.17	2.18
Iron bars, Chicago, mill	1.90	1.90	1.95	2.10
Beams, Pittsburgh	1.90	1.90	2.00	2.00
Beams, Philadelphia	2.17	2.17	2.22	2.12
Beams, Chicago	2.10	2.10	2.10	2.00
Tank plates, Pittsburgh	1.80	1.80	1.90	1.80
Tank plates, Philadelphia	2.02	2.07	2.22	1.92
Tank plates, Chicago	2.10	2.10	2.10	2.00
Sheets, black, No. 28, Pittsburgh	3.10	3.15	3.15	3.40
Sheets, blue anl., No. 10, Pittsburgh	2.25	2.30	2.30	2.60
Sheets, galvanized, No. 28, Pittsburgh	4.20	4.20	4.20	4.60
Sheets, black, No. 28, Chicago	3.35	3.35	3.35	3.75
Sheets, blue anl. No. 10, Chicago	2.45	2.45	2.45	2.85
Sheets, galvanized, No. 28, Chicago	4.45	4.45	4.40	4.75
Wire nails, Pittsburgh	2.65	2.65	2.70	2.75
Wire nails, Chicago	2.70	2.70	2.80	2.90
Tin plate per base box, Pittsburgh	5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	18.00	19.00	17.20	18.40
Heavy melting steel, eastern Pa.	17.00	17.25	16.00	17.20
Heavy melting steel, Chicago	16.25	16.45	15.35	16.25
No. 1 wrought, eastern Pa.	18.25	18.25	18.25	18.75
No. 1 wrought, Chicago	15.75	17.05	15.90	15.95
Rails for rolling, Chicago	18.25	19.00	17.45	17.20

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Oct. 14, 1925)	$37.43
Last week (Oct. 7, 1925)	37.43
One month ago (September, 1925)	37.35
Three months ago (July, 1925)	37.45
One year ago (October, 1924)	38.65
Ten years ago (October, 1915)	26.19
Twelve years ago (October, 1913)	24.91

Late News Flashes

Columbus Works Equipment Offered

Chicago, Oct. 13.—Complete primary and auxiliary equipment of the abandoned Columbus, O., works of the Carnegie Steel Co. is being offered on the market. The equipment consists of two blast furnace units complete, converters, cupolas, gas producers, blooming mill, sheet bar mill, tools and miscellaneous supplies.

Will Add Another Furnace

Pittsburgh, Oct. 13.—The Carnegie Steel Co. operated 73 per cent of steelmaking last week but has 75 per cent scheduled this week. Between 75 and 80 per cent is the figure for the independents. The Carnegie Steel Co. plans to blow in another furnace of the Carrie group to give it 33 blast furnaces out of 56 active.

Valley Operations Are Sustained

Youngstown, O., Oct. 13.—Operations throughout the Mahoning valley reflect sustained business in practically all lines. Sheetmakers have 94 per cent of rolling capacity scheduled while district steelmaking is at 75 per cent of capacity. Bar mills are operating at about 90 per cent. Tin and strip mills are working at capacity.

Chicago Nears 80 Per Cent

Chicago, Oct. 13.—Steel ingot operations are slowly being pushed up and will attain the level of 80 per cent by the end of this week. With the blowing in of the third Wisconsin Steel Co. stack, 24 out of 35 steel works stacks in this district will be active. Eight merchant stacks will be active soon when Iroquois No. 4 is blown in.

Campbell Sees Higher Prices

Youngstown, Oct. 13.—Good steel business to the end of the year and beyond, higher prices, and heavy buying by the railroads were forecast by President James A. Campbell of the Youngstown Sheet & Tube Co. in an interview here before leaving for a short vacation at White Sulphur Springs, W. Va. Mr. Campbell declared he had purchased raw materials needed in his business for the next six months. Earnings of his company, he said, were up to expectations.

Foreign Competition Again Felt

Philadelphia, Oct. 13.—Competition of foreign steel along the Atlantic seaboard is being felt more keenly again. A Baltimore contractor has awarded 3600 tons of concrete reinforcing bars for a grain elevator of the Reading Co. to foreign mills. Guest, Keen & Nettlefolds, Ltd., British producers, have sold 20,000 tons of pig iron to consumers in the Philadelphia district.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch, base

Pittsburgh, open hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.50
Philadelphia	39.30 to 39.80
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	44.30 to 44.80

SHEET BARS

Pittsburgh	35.00
Youngstown	35.50 to 35.00

SLABS

Pittsburgh	$35.00
Youngstown	35.50 to 35.00

WIRE RODS

¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	47.00

Standard extras, $2.50 per ton over ⅝-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.07c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.80c
Philadelphia	2.02c to 2.12c
New York	2.04c to 2.14c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	1.90c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.22c to 2.32c
New York, soft steel	2.24c to 2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c
Chicago, rail steel	2.00c to 2.10c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.12c to 2.22c
New York, common iron	2.14c to 2.24c
Chicago, common iron	1.90c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c to 2.50c
Hot rolled strip steel, Chicago	2.55c to 2.65c
Bands, Chicago, under 6 inches	2.50c
Bands, Chicago, 6 in. and over	2.60c
Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.75c
Worcester, Mass., Chicago	4.15c

Cold Finished Steel

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.40c
Less carload	2.65c to 2.75c
Steel shaft'g turned and polished Pittsburgh, Chicago	2.40c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steels

Pittsburgh or Chicago

S. A. E. Series—

2300 (3½ per cent nickel	4.60c to 4.75c
3100 (Nickel chromium)	3.60c to 3.65c
6100 (Chrome vanadium)	4.40c to 4.50c
6100 (Chrome vanad. spring)	3.85c to 4.00c
9250 (Silico mang. spring)	3.30c to 3.40c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mills	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill	1.60c to 1.70c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16 inch and smaller, Pitts.	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c
Coated nails, count keg	1.80c to 1.85c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh base	3.15c
No. 28, Philadelphia, delivered	3.47c to 3.52c
No. 28, Gary, Indiana Harbor	3.30c
No. 28, Chicago, delivered	3.35c

TIN MILL, BLACK

No. 28, Pittsburgh	3.15c
No. 28, Gary base	3.35c to 3.40c

GALVANIZED

No. 28, Pittsburgh base	4.30c
No. 28, Philadelphia, delivered	4.52c to 4.62c
No. 28, Gary, Indiana Harbor	4.40c
No. 28, Chicago, delivered	4.45c

BLUE ANNEALED

No. 10, Pittsburgh base	2.30c
No. 10, Philadelphia, delivered	2.62c
No. 10, Gary, Indiana Harbor	2.40c
No. 10, Chicago, delivered	2.45c

AUTOMOBILE SHEETS

No. 22, Pittsburgh base	4.25c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	15

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, f.o.b. mills	2.90c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	46.00 to 47.00
Six-inch and over, Birmingham	42.00 to 43.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank ..... $4.00 off list

Hot pressed hexagon tapped or blank ..... $4.40 off list

Cold punched square or hexagon blank ..... $4.10 off list

Cold punched square or hexagon tapped or blank ..... $4.10 off list

Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger ..... 75, 10 and 5 off

Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller ..... 80, 10 and 5 off

Cold finished S. A. E. semifinished ⅝-inch and larger ..... 75, 10, 10 and 5 off

Cold finished S. A. E. semifinished 9/16-inch and smaller.. 80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
*Flat and round head stove bolts	80, 10 and 5 off
Tap bolts	80 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off

*Stove bolts 80, 10 and 5 off plus 2½ in bulk

Tire bolts ..... 60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80, 10 and 5 off
Upset	80, 10, 10 and 5 off

SQUARE HEAD SET SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

Rivets

Structural rivets, carloads Pittsburgh and Cleveland	2.40c to 2.50c
Structural rivets, carloads, Chicago	2.60c
**Rivets, 7/16-in. and smaller Pittsburgh and Cleveland	70, 10 and 5 off
**Rivets, 7/16-in. and smaller Chicago	70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chi. dist.	$6.30 to $6.40 off
Wrought, c.l., Pitts. dist.	6.25 off
Lock washers f.o.b. factory	35 off

Pig Iron

Demands for First Quarter Increase as Prices Strengthen — Radiator Company's Purchase of 50,000 Tons Features Sales

WITH practically all melters covered for fourth quarter requirements, interest in the pig iron market centers on prices for the next period. Inquiries have become more numerous and pressing, while the majority of furnace companies avoid quoting for the first quarter until the coke market becomes more settled. The American Radiator Co. came into the market during the week and purchased around 50,000 tons for that delivery. It is understood the prices paid on some of the tonnage were 50 cents above those quoted by the sellers for the last quarter. This was the principal transaction of the week. Valley producers' minimum now is $19.50, base, for the present quarter, although some resale iron is offered by a middle interest at $19.

PITTSBURGH, Oct. 13.—Pig iron prices remain where they have been, because producers are not yet paying the higher figures asked for coke. Banking of blast furnaces during the first quarter is a possibility since by April 1 domestic demand, now holding up coke prices, will have disappeared. While some foundry iron is available for first quarter at $20, valley, producers are only taking a limited amount for a backlog. Merchant furnaces are quoting $19.50 valley, as minimum for No. 2 foundry, for prompt sales involving up to 600 tons, while $19, valley is quoted by a middle interest on resale iron. One sale of 1000 tons of malleable brought $19.50, valley. Pig iron consumers generally are not stampeding to purchase, although some effort is noted to expand this quarter's tonnage in order to supply partial first quarter needs. The National Radiator Co., Johnstown, bought 3500 tons of foundry iron from a Pennsylvania steelworks interest at $19.50, valley basis for No. 2 plain. It also is negotiating a large tonnage for its New Castle plant, and is understood to be closing with a middle interest. A few small sales of bessemer and one 500-ton lot for delivery over the remainder of the year brought $19.50, valley. Basic is unchanged and inactive at $18.50, valley.

Boston, Oct. 13.—Pig iron prices are firmer in New England, and sales show a good total. One of the largest sales was 800 tons to a Connecticut hardware manufacturer at $19, Buffalo, or $23.91 delivered. Smaller sales have been entered at $19.50 Buffalo for the base grade and for first quarter delivery. Silicon differentials, frequently shaded heretofore, are now firmly held. Small lots of foreign iron aggregating more than 2000 tons have been sold during the week at $22 on cars, Boston.

New York, Oct. 13.—Negotiations by the American Radiator Co., for 10,000 tons of foundry iron for Bayonne, N. J. is the leading development in the pig iron market here. Other companies in the market include Moore Bros. Co., Elizabeth, N. J.; Louis Sacks Iron Foundry, Newark, N. J.; New Jersey Zinc Co., Worthington Pump & Machinery Corp., and others but none of these negotiations involved as much as 1000 tons. On eastern Pennsylvania foundry iron the minimum is $21, base furnace, with $21.50 quoted by makers who are heavily sold. On Indian foundry iron, which continues to come in in substantial tonnages, the market now is $20.50 to $21 duty paid tidewater. On Buffalo foundry the complete range is $19 to $20.50, base furnace, with nothing apparently under $19. While sales of English iron have been made in this district recently the movement is not considered as a continuous one.

Pig Iron Prices

Prices per gross tons

Bessemer, valley	$19.50
Bessemer, Pittsburgh	21.26
Basic, valley	18.50
Basic, Pittsburgh	20.26
Basic, Buffalo	18.50 to 19.00
Basic, del., eastern Pa.	20.50 to 21.00
Malleable, valley	19.00 to 19.50
Malleable, Pittsburgh	20.76 to 21.26
Malleable, Cleveland	20.00
Malleable, Chicago	21.50
Malleable Buffalo	19.00
Malleable, del., eastern Pa.	22.25
No. 1X, eastern del., Phila.	22.76 to 23.26
No. 1X, Buffalo	19.50 to 20.00
No. 1 foundry, Chicago	22.00
No. 2 foundry, valley	19.00 to 19.50
No. 2 foundry, Pittsburgh	20.76 to 21.26
No. 2 foundry, Buffalo	19.00
No. 2 foundry, Chicago	21.50
No. 2 foundry, Granite City	22.50 to 23.00
No. 2 foundry, Ironton fur.	19.50 to 20.00
No. 2 foundry, Cleveland, del.	20.00
No. 2 foundry, del., Phila.	21.76
No. 2 foundry, N. J., tidewater	22.39
No. 2X, Eastern del., Phila.	22.26
No. 2X, east. N. J., tidewater	22.89
No. 2X, eastern del., Boston	24.65 to 25.65
No. 2X, foundry, Buffalo fur.	19.00 to 19.50
No. 2X, Buffalo, del., Boston	23.91 to 24.41
Continental foundry f.o.b. Boston	21.50 to 22.00
India, 2.25 to 2.75 silicon, delivered cars Boston	21.50 to 22.00
No.2 Alabama, Birmingham	19.00 to 20.00
No. 2 Alabama, Cincinnati	23.05 to 24.05
No. 2 Tenn., Birmingham	19.00
No. 2 Tenn., Cincinnati	23.05
No. 2 southern, Philadelphia	25.01 to 26.01
No. 2 southern, Chicago	25.01 to 26.01
No. 2 southern, Chicago (barge and rail(	23.18 to 23.68
No. 2 southern, Boston (rail and water)	25.91
No. 2 southern, Cleveland	25.01 to 26.01
No. 2 southern, St. Louis	24.17 to 25.17
No. 2X, Virginia furnace	22.50 to 23.50
No. 2X, Virginia, Phila.	27.67 to 28.67
No. 2X, Virginia, Jersey City	28.04 to 29.04
No. 2X, Virginia, Boston	28.42 to 29.42
Gray forge, eastern Pa.	21.00 to 21.50
Gray forge, val. del. Pitts	20.26
Low phos., standard, valley	27.00 to 27.50
Low phos., standard, Phila.	26.79
Low phos., Lebanon, furnace	23.50 to 24.50
*Low phos., English	24.01
Charcoal, Birmingham	30.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $24.50; 6 per cent $25.50; 7 per cent $26.50; 8 per cent $27.50; 9 per cent $29.00; 10 per cent $31.00; 11 per cent $33.00; 12 per cent $35.00; 13 per cent $37.00; and 14 per cent $39.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $33.50; 11 per cent $35.00; 12 per cent $37.00; 13 per cent $39.00; 14 per cent $41.00; 15 per cent $43.50; 16 per cent $46.00; 17 per cent $48.50.

*Duty paid, delivered Philadelphia consumers.

Buffalo, Oct. 13.—Heavy purchases have resulted in most pig iron users being covered for nearby needs, and present inquiry is down to 10,000 to 12,000 tons. Last week's sales were about equal to present inquiry. One Buffalo maker will accept fourth quarter tonnage on a $19 base while one or two are out of the market except to established trade. One local furnace is said to have 10,000 tons of foundry iron to offer for prompt shipment at $19 for the low silicon grade. On first quarter tonnage higher prices are asked. One merchant interest seeking a base of $19.50 and another, $20. Silicon differentials are nominally in effect. There is no $18.50 iron in the district, makers say. Operation is slightly more than 55 per cent of capacity.

Cleveland, Oct. 13.—Heavier buying and more inquiries for the first quarter feature the pig iron market. The American Radiator Co. has just closed for about 50,000 tons with several makers for various plants for first quarter. On some of the iron prices were over those quoted for fourth quarter. Strength in the coke market is being transmitted to pig iron, and furnace interests here show more reluctance to quote for first quarter. The Link-Belt Co. is out for 5000 tons of malleable for first quarter, and an Illinois malleable foundry is inquiring here for 1000 tons for that delivery. Other inquiries for first quarter bring the total to around 20,000 tons, pending. In line with increasing demand from motor car builders, the Buick Motor Co. is in the market for 14,000 tons of foundry iron for the remainder of this year. One furnace interest here during the week booked 20,000 tons for fourth and first quarters. Another took 10,000 tons. Prices are strong at $19 to $19.50, valley, for October, November and December shipment, and $20, base Cleveland furnace for local delivery. Cleveland furnaces are preparing to announce

their price for local delivery for the first quarter next week.

Chicago, Oct. 13.—The northern pig iron market appears a trifle less brisk, with most melters covered for the fourth quarter and first quarter demand not yet having fully developed. The day-to-day sales, however, mount up to a surprising tonnage. For fourth quarter, $21.50, Chicago furnace, continues to rule. The first quarter price has not been determined, but what little business is being taken for this delivery is also based on $21.50. Pressure for shipments continues pronounced. An implement interest has placed about 4000 tons, including some southern, for three of its plants. A sale of

(*Concluded on Page* 997)

Ferroalloys

Prompt Ferromanganese in Better Demand—Spiegeleisen Is Lifeless

New York, Oct. 13.—The recent improved demand for spiegeleisen is maintained. About 1000 tons was sold during the past week for first quarter. The market is $33 furnace for 20 per cent with concessions on the larger tonnage.

Several tentative inquiries for ferromanganese are before the trade, but not more than 500 tons altogether seem involved. Actual sales are small. The market is unchanged at $115 duty paid tidewater.

Special ferroalloys are unchanged in a firm market. Ferrotungsten prices cover a wide spread on account of some high asking prices and some metal available from old imported stocks at $1.05 a pound contained. Tungsten ore or wolframite for future shipment is held at $12 on several inquiries but some buyers in the market think they will be able to do a little less, basis short ton unit.

Pittsburgh, Oct. 13.—Prompt market ferromanganese sales are increasing. One large domestic producer again sold several lots aggregating about 500 tons the past week, with $115 seaboard base, the unchanged figure. So far, no inquiries are appearing for first quarter. On ferrotungsten the market is firm at $1.15 minimum. One inquiry is out for about 500 pounds. Some German material of somewhat different quality is offered at a lower figure, around $1.11 or $1.12. Spiegeleisen inquiry shows no life although shipments against contracts are heavy. Prices are unchanged at $32 and $33 on single carloads.

Chicago, Oct. 13.—The ferroalloy market continues unusually quiet, with few sales in excess of carloads. Prices, however, are holding on the basis of $115, seaboard, for ferromanganese, and $33, domestic furnace, for spiegeleisen.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent per domestic furnace or tidewater	33.00
Ferrosilicon, 50 per cent contract freight allowed	$32.50 to $35.00
Ferrotungsten standard, cents per pound contained	1.10 to 1.15
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	8.25 to 8.90
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	$91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent material)	$122.50

†Duty paid

Coke

Beehive and By-Product Prices Rising Rapidly — Sudden Demand for Coal Substitute

COKE prices have responded to the sudden brisk demand for beehive and by-product fuel as a substitute for coal. As high as $7, ovens, has been paid on by-product coke in some of the central western districts in the past week, for the same grades that were available at $5 a few weeks ago. Connellsville furnace coke has advanced from $3.75 last week to $5.50 and $6.

Pittsburgh, Oct. 13.—Total disappearance of demand for metallurgical beehive coke was more than made up by demand for anthracite substitutes developing within the past week. Dealers and consumers in eastern seaboard states are telephoning, telegraphing and mailing inquiries. Others are sending personal representatives to comb the region for available supplies. Inquiries are plentiful for ten to 100 carloads at a time. Several involve up to 200 carloads for barge cargoes. Early last week $3.75 could be done on standard furnace grade but before the week ended spot sales were made at $4.50 to $5.50. Yesterday $5.50 easily was obtainable and $6 now is quoted. Higher figures are in sight. Eastern dealers are installing crushing devices and screens, planning permanent sales of Connellsville fuel after the anthracite strike ends. Foundry coke also is advancing, $6 now being quoted, against $4.50 a short time ago. Demand is spasmodic.

Production of coke in the Connellsville region for the week ended Oct. 3 was 125,430 tons, compared with 122,130 tons in the preceding week, according to the *Connellsville Courier*.

New York, Oct. 13.—Foundrymen in this territory are under contract for much of the coke they will take during the fourth quarter. Specifications on contracts are heavy, but spot demand is light. As a result the market on spot beehive foundry coke continues $4.75 to $5.25, Connellsville. The northern New Jersey by-product coke producer, effective today, is quoting $10.91 delivered Newark and other northern New Jersey points on by-product foundry coke. This is an advance of 50 cents. The new price is equivalent to $7, Connellsville. The leading activity involves crushed and screened coke for use as domestic fuel and this material is becoming scarce.

Cincinnati, Oct. 13.—Stability characterizes conditions in the coke market. The Terre Haute, Ind., maker of domestic fuel is sold up until April 1, while a number of producers of by-product foundry coke have more business on their books than they actually can care for at present. The movement of beehive foundry coke has fallen off, and furnace coke still is a drag on the market. Surplus stocks of furnace coke are likely to be reduced with the blowing in shortly of the Sarah stack of the Belfont Steel & Wire Co., at Ironton, O.

St. Louis, Oct. 13.—Fair demand exists for foundry coke, and the leading by-product producers are able to dispose of their current output, despite capacity operations. The St. Louis Coke & Iron Co. has advanced its price of foundry coke from $9.50 to $10, f.o.b. Granite City. The chief West Side producer continues to quote $10, ovens. September business of the leading East Side by-product producer was the largest for any month on record, both for new orders and shipments.

Birmingham, Ala., Oct. 12.—Coke demand is better and quotations are advancing, $5 being asked for the foundry grade by by-product interests. Beehive producers are getting $5 to $5.50.

Coke Prices

Beehive, Ovens

Prices per net ton	
Connelsville, foundry	5.00 to 6.00
Connellsville furnace	5.00 to 6.00
New River foundry	7.00 to 7.50
Wise county furnace	3.75 to 4.25
Wise county foundry	4.50 to 5.25
Alabama foundry	5.00 to 5.50
Alabama furnace	4.50 to 4.75

By-Product

Foundry, Newark, N. J.: del	$10.91
Foundry, Chicago, ovens	10.25
Foundry, New England, del.	12.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	4.75 to 5.00

The Market Section

Plates

Miscellaneous Demand Give Mills Fair Aggregate — Large Tonnage in Pending Car Needs

PLATE business is comprised almost entirely of moderate size miscellaneous tonnages, and there has been no change in the price situation during the week. Chicago fabricators are waiting the award of cars, pending inquiries for which involve 100,000 tons of steel, expected to be closed this month. The building industry has been absorbing some good tonnages recently.

PLATE PRICES, PAGE 982

Pittsburgh, Oct. 13.—Miscellaneous plate business runs up a large aggregate each week. One maker in the Youngstown district is booked five to seven weeks. Detroit has awarded a 2500-ton riveted pipe line to Pittsburgh fabricators. While some plate producers have gone to 1.75c, Pittsburgh base, in meeting competition in certain sections of the state, their quotations are firm at 1.80c minimum in this and nearby vicinities. Contracts for fourth quarter are practically all closed and specifications against them are being received regularly.

New York, Oct. 13.—Plate buying so far in October is at a lower rate in this territory than in September. Prices are unchanged, the usual range being 1.70c to 1.80c base Pittsburgh.

Cleveland, Oct. 13.—Principal new requirements of size coming into the plate market in this territory cover stills for Standard Oil companies. One lot of 1800 tons and another of 600 tons are pending. Buyers are showing more willingness to anticipate future needs and more contracts are being entered into. Inquiries also are more numerous. Nothing less than 1.80c, Pittsburgh or 1.90c, Cleveland are in evidence.

Chicago, Sept. 13.—Pending freight car inquiry requires 100,000 tons of steel, most of which should be placed this month. The Roxana Petroleum Co. has placed an additional 2000 tons of tank work with a Chicago district tank fabricator. Demand for small filling station and oil storage tanks continues heavy. The unusual activity in the building industry is accounting for a good tonnage of plates. The market on plates is stronger at 2.10c, Chicago.

Philadelphia, Oct. 13.—Plate bookings are above shipments. Eastern mills operations average 40 to 50 per cent, with one maker at 60 to 65 per cent . The usual range of prices continues 1.70c to 1.80c, Pittsburgh, with lower in some instances. The Pennsylvania and Reading railroads have placed several hundred tons each. The Pusey & Jones Co. has placed 2500 tons for two Ericsen line boats with the Worth Steel Co .

CONTRACTS PLACED

2500 tons, riveted pipe line for Detroit waterworks department to James McNeil & Bro. Co., Pittsburgh, through William Hays, general contractor.

200 tons, miscellaneous tanks for installation in New Jersey, to the Pittsburgh-Des Moines Steel Co.

Leland G. Davis, assistant federal attorney at Buffalo, has been appointed receiver for the Smith Elevator Co., that city. Assets are listed at $88,000 and liabilities at $67,173.08, the latter consisting of accounts and notes payable, rent and payroll due. The business will continue in operation.

To Build Slag Plant

Pittsburgh, Oct. 13.—The Clinton Iron & Steel Co. is building a slag product plant near its blast furnace. The addition to be made disposes of many rumors in the past that the blast furnace, which is the nearest iron and steel plant to the downtown district, was to be sold to the Pittsburgh & Lake Erie railroad for extension of facilities. The new plant will crush slag which will be sold for road building purposes. As noted in the IRON TRADE REVIEW last week, the John Eichleay Jr. Co. will fabricate the structural steel for the plant.

Semifinished

Valley and Pittsburgh Prices Show Spread of $1.50—Sheet Bar Requirements Contracted

WHILE valley mills have been active in selling sheet bars at $33.50, to meet competition from an outside source, Pittsburgh producers continue to quote $35. Valley makers also are selling billets and slabs at $33.50, while the price at Pittsburgh holds at $35. On 12,000 tons of sheet bars, billets and slabs booked by Independent interest $35, Pittsburgh, applied.

SEMIFINISHED STEEL PRICES, PAGE 982

Pittsburgh, Oct. 13.—Orders have been slightly more numerous for semifinished material. One independent Pennsylvania steel interest has closed with a regular customer on 12,000 tons of sheet bars and slabs, and claims the full $35 price was obtained. Efforts were made by this buyer to develop lower figures but he was not successful, one important Youngstown producer refusing even to consider $34. Some rerolling business has been closed at $35, Pittsburgh, on 4 x 4-inch, and at $36.50 on small billets. Forging billet orders, several involving 100 or 150 tons each, and one involving 1200 tons, were closed this past week at $40, Pittsburgh. Specifications against wire rod contracts are keeping up fairly well, the price being $45. Skelp generally is quoted at 1.90c but should any tonnage inquiries develop, they probaly could be placed at 1.80c.

Philadelphia, Oct. 13.—Several thousand tons of billets were sold in the week, although consumers refrain from contracting. Price irregularity continues. Rerolling billets are $34 to $34.50, Pittsburgh, and forging quality $39 to $39.50. Lower prices have been done in some recent instances.

Youngstown, O., Oct. 13.—Practically all sheetmakers here contracted for their last quarter sheet bar requirements last week, and no new demand is up for quotation. Only one producer here is in a position to supply tonnage for this quarter. On contract or spot tonnages of sheet bars, billets and slabs $33.50, Youngstown represents the market.

Chicago, Oct. 13.—The market on small billets is stronger and the base quotation of $35, Chicago, is rapidly becoming the minimum.

China a Growing Market

Washington, Oct. 13.—Average importation of iron and steel products has increased 77 per cent from 1921 to 1924 over the 1910-1914 period, according to reports of the iron and steel division of the department of commerce. Products showing the preatest gain are bars, rails, tin plate, sheets and plates, pipe and tubes, galvanized wire and nails and rivets. In 1924, 57,126 gross tons of American iron and steel went into China.

In that year a total of 547,706 tons of foreign iron and steel entered China, compared to 347,064 tons in 1923 and 168,872 tons in 1912. The United States supplied 17.8 per cent of Chinese receipts of more important iron and steel products in 1923, the latest figures available. In 1919 and 1920, American producers had supplied 45 and 42 per cent.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.00 to 14.00
Boston (dealers)	11.50 to 12.50
Buffalo	18.25 to 19.00
Chicago	16.00 to 16.25
Cincinnati (dealers)	14.00 to 14.50
Cleveland	17.25 to 17.50
Detroit	14.50 to 15.50
Eastern Pennsylvania	17.00 to 17.50
Bethlehem delivery	16.50 to 17.00
New York (dealers)	12.50 to 13.00
Pittsburgh	18.00 to 18.50
St. Louis	15.25 to 15.75
Valleys	18.25 to 18.50

COMPRESSED SHEETS

Buffalo	15.50 to 16.00
Chicago	13.50 to 14.00
Cleveland	14.50 to 14.75
Detroit	12.50 to 13.00
Pittsburgh	16.50 to 17.00
Valleys	16.25 to 16.75

BUNDLED SHEETS

Buffalo	14.50 to 15.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	11.75 to 12.00
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh	15.50 to 16.00
St. Louis	10.00 to 10.50
Valleys	14.25 to 14.75

SHEET CLIPPINGS, LOOSE

Chicago	9.00 to 9.50
Cincinnati	10.00 to 10.50
Detroit	9.50 to 10.00

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Buffalo	17.75 to 18.25
Chicago	19.00 to 19.50
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	16.25 to 16.50
Detroit	17.00 to 17.50
St. Louis	18.50 to 19.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	14.00 to 14.50
Buffalo	15.00 to 15.50
Chicago	16.25 to 16.75
Cincinnati (dealers)	10.50 to 11.00
Cleveland	13.50 to 13.75
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	10.50 to 12.00
Pittsburgh	14.00 to 14.50
St. Louis	14.00 to 14.50

LOW PHOSPHORUS

Buffalo	20.00 to 20.50
Cincinnati (dealers)	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
Pitts. billet and bloom crops	23.00 to 23.50

SHOVELING STEEL

Chicago	15.75 to 16.25
Pittsburgh	14.00 to 14.50
St. Louis	15.25 to 15.75

KNUCKLES, COUPLERS, SPRINGS

Chicago	18.50 to 19.00
Eastern Pennsylvania	20.50 to 21.50
Pittsburgh	21.00 to 21.50
St. Louis	16.00 to 16.50

FROGS, SWITCHES, GUARDS

Chicago	17.00 to 17.50
Eastern Pennsylvania	17.00 to 17.50
St. Louis	17.00 to 17.50

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	18.50 to 19.00
St. Louis	16.50 to 17.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	12.00 to 13.00
Boston (dealers)	13.50 to 14.00
Buffalo, No. 1	15.75 to 16.25
Buffalo, No. 2	17.50 to 18.00
Chicago, No. 1	15.75 to 16.25
Chicago, No. 2	16.00 to 16.25
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cleveland, No. 1	12.50 to 13.00
Eastern Pennsylvania	18.00 to 18.50
New York, No. 1 (dealers)	15.50 to 16.00
Pittsburgh, No. 1	15.50 to 16.00
Pittsburgh, No. 2	18.00 to 18.50
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	15.25 to 15.75

WROUGHT PIPE

Boston (dealers)	11.50 to 12.00
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	12.50 to 13.00

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50

BUSHELING

Buffalo	16.00 to 16.50
Chicago, No. 1	13.50 to 14.00
Chicago, No. 2	9.75 to 10.25
Cincinnati, No. 1 (dealers)	13.50 to 14.00
Cleveland, No. 1	13.75 to 14.00
Cleveland, No. 2	13.50 to 13.75
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	15.50 to 16.00
St. Louis, No. 1	13.50 to 14.00

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston (chemical)	9.00 to 9.50
Buffalo	12.50 to 13.00
Chicago	8.75 to 9.25
Cincinnati (dealers)	10.00 to 10.50
Cleveland	12.50 to 13.00
Detroit	10.25 to 10.75
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	9.75 to 10.25
Pittsburgh	14.00 to 14.50
St. Louis	9.00 to 9.50
Valleys	12.00 to 12.50

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	7.00 to 8.00
Boston (chemical)	11.00 to 11.50
Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Chicago	12.50 to 13.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	14.00 to 14.25
Detroit	10.75 to 11.25
Eastern Pennsylvania	15.00
Eastern Pennsylvania (chem.)	16.00 to 16.50
New York (dealers)	9.75 to 10.25
Pittsburgh	14.00 to 14.50
St. Louis	12.50 to 13.00
Valleys	13.50 to 13.75

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.00 to 8.50
Buffalo	12.50 to 13.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	14.00 to 14.25
Detroit	10.75 to 11.25
Eastern Pennsylvania	12.00 to 13.50
New York (dealers)	9.75 to 10.25
Pittsburgh	14.00 to 14.50

PIPES AND FLUES

Chicago	12.50 to 13.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	12.00 to 12.25
St. Louis	12.00 to 12.50

RAILROAD GRATE BARS

Buffalo	14.50 to 14.75
Chicago	15.75 to 16.25
Cleveland	13.50 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	11.50 to 12.00
St. Louis	13.50 to 14.00

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	14.50 to 15.00
Chicago	11.00 to 11.50
Cleveland (under 10 in.)	13.00 to 13.25
Cleveland (over 10 in.)	12.50 to 12.75
Detroit	10.75 to 11.25
Pittsburgh	12.50 to 13.00

FORGE SCRAP

Boston (dealers)	9.50 to 10.00
Chicago	19.00 to 19.50
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	23.00 to 23.50
St. Louis	21.00 to 21.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.50 to 10.00
Buffalo	15.00 to 15.50
Chicago	14.00 to 14.50
Cleveland	15.00 to 15.25
Eastern Pennsylvania	15.00 to 15.50
Pittsburgh	16.50 to 17.00
St. Louis	13.00 to 13.50

STEEL CAR AXLES

Birmingham	18.00 to 20.00
Boston (shipping point)	17.50 to 18.00
Buffalo	20.00 to 20.50
Chicago	19.00 to 19.50
Cleveland	17.25 to 17.50
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	21.50 to 22.00
St. Louis	19.50 to 20.00

SHAFTING

Boston (shipping point)	18.50 to 19.00
Chicago	20.50 to 21.00
Eastern Pennsylvania	23.00 to 24.00
New York (dealers)	18.00 to 19.00
St. Louis	17.50 to 18.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	15.00 to 16.00
Boston (consumers)	17.50 to 18.00
Buffalo, iron	15.50 to 16.00
Buffalo, steel	18.00 to 18.50
Chicago, iron	16.75 to 17.25
Chicago, steel	19.00 to 19.50
Cincinnati	13.50 to 14.00
Eastern Pennsylvania	18.50 to 19.00
New York iron (dealers)	14.00 to 15.00
Pittsburgh, iron	17.50 to 18.00
Pittsburgh steel	20.50 to 21.50
St. Louis, iron	17.00 to 17.50
St. Louis, steel	18.50 to 19.00

NO. 1 CAST SCRAP

Birmingham, cupola	16.00 to 17.00
Boston	19.00 to 19.50
Buffalo	17.00 to 17.50
Chicago, No. 1 machinery	19.25 to 19.75
Chicago No. 1 railroad or agricultural	18.50 to 19.00
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	18.00 to 18.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.50 to 19.00
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.00 to 17.50
San Francisco, delivered	20.00 to 21.00
Seattle	18.00
St. Louis, railroad	17.00 to 17.50
St. Louis, agricultural	17.00 to 17.50
St. Louis, machinery	19.00 to 19.50
Valleys	18.00 to 18.50

HEAVY CAST

Boston	16.50 to 17.00
Buffalo (breakable)	15.00 to 15.50
Cleveland	12.25 to 12.75
Detroit (automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.50 to 15.00
Pittsburgh	15.00 to 15.50

MALLEABLE

Boston, railroad	19.00 to 19.50
Buffalo	19.00 to 19.50
Chicago, agricultural	16.75 to 17.25
Chicago, railroad	18.00 to 18.50
Cincinnati, railroad (dealers)	14.00 to 14.50
Cincinnati, agricultural (dealers)	15.00 to 15.50
Cleveland, agricultural	18.00 to 18.50
Cleveland, railroad	19.00 to 19.50
Detroit	15.50 to 16.00
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	19.00 to 19.50
St. Louis, agricultural	14.00 to 14.50
St. Louis, railroad	15.00 to 15.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	17.00 to 17.50
Boston (dealers)	12.50 to 13.00
Buffalo	17.50 to 18.00
Chicago	18.25 to 18.75
Cleveland	16.50 to 16.75
Eastern Pennsylvania	17.00 to 17.50
New York	15.50 to 16.00
Pittsburgh district	19.50 to 20.00
St. Louis	18.00 to 18.50

LOCOMOTIVE TIRES

Chicago, No. 1	18.00 to 18.50
Chicago, cut	18.50 to 19.00
St. Louis, No. 1	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	18.00 to 18.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.50 to 21.00

Scrap

Signs of Returning Strength Shown as Market Holds—Prices Little Changed

WEAKNESS in iron and steel scrap appears to have been worked out and the market generally is stronger, though little change has taken place in prices. Dealers, first to sense a change, are speculating by paying as high prices as consumers are willing to offer. Railroad tonnages bring good prices. Consumers continue to buy little and some distress lots have appeared.

Chicago, Oct. 13.—With most of the recent weakness apparently shaken out of iron and steel scrap, buying and selling appear to be at dead center. Most small consumers have fair stocks or commitments. Several independent melters of heavy melting steel are nibbling, with offers at $16, at which level dealers are able to buy steel freely. It would seem that melters would pay $16.25 for a tonnage but dealers are holding out for more. Railroad malleable is up 50 cents, to $18 to $18.50, largely because of covering operations. The bright side of the market is that some dealers are offering $1 or more above the market on railroad lists, giving evidence that the speculative element is again beginning to show activity. The market in general is on the basis of $16 to $16.25, for heavy melting steel.

Boston, Oct. 13.—Heavy melting steel scrap is more active in New England. A Rhode Island melter took 500 tons at $12.40 shipping point. Eastern Pennsylvania steel works are offering to pay $17 which figures about $12 shipping point, this district. Observers estimate that upwards of 1500 tons of heavy steel have been shipped during the last few days. Mixed boring and turning are weak with some sales made as low as $8.50.

New York, Oct. 13.—Activity in iron and steel scrap is confined largely to buying by dealers against contracts. There is little consuming demand. Prices are unchanged at the level that has prevailed for some time.

Pittsburgh, Oct. 13.—Sales of heavy melting steel and compressed sheets, in the Youngstown territory to the two larger steel producers there have been about 50,000 tons the past week. Sales in the immediate vicinity, while more numerous, involve much smaller tonnages and heavy melting steel still is quoted at $18 to $18.50. Compressed sheets are $16.50 to $17. High grade specialties brought $22.50 recently but on regular material $21.50 is the top of the market with some steel foundries not offering more than $20.50. Cast grades are absolutely inactive.

Buffalo, Oct. 12.—On the strength of stronger outside markets and small stocks and receipts, Buffalo holders of heavy melting steel have decidedly firm ideas of value this week. The larger dealers regard heavy melting steel as worth at least $18.50 and possibly $19.

Detroit, Oct. 13.—The iron and steel scrap markets are practically stagnant. Large consumers appear entirely out of the market and show no interest unless distress quantities are offered. A little of this has appeared on the market here and losses have been taken by a few dealers on some quantities. Not only is new business at a minimum but some past orders are being held up. Dealers are buying only when absolutely necessary to fill past orders.

Cincinnati, Oct. 12.—Quiet prevails in iron and steel scrap. Consumers manifest no interest in offerings and shipments on contracts have dropped off perceptibly. Railroads are offering huge lists, but they are attracting little attention from dealers.

St. Louis, Oct. 12.—Dullness and lower prices continue to characterize iron and steel scrap. The industries for the most part are apparently well equipped with supplies, and those who are not taking only current needs. Virtually all grades are affected by the apathy, and barring some sudden buying by the carriers, present conditions are likely to obtain for some time. Railroad offerings are fairly large, and included the following: Southern railroad, 6500 tons; St. Louis Terminal Railway association, 3000 tons, the first offering by this company in two years; Frisco, 2800 tons, Kansas City Southern, 1000 tons; Texas & Pacific, 800 tons; Pullman Co., 7 cars; Chicago & Eastern Illinois, 26 cars and Chicago & Alton, 1700 tons.

Birmingham, Ala., Oct. 12.—With consumption of old material showing improvement almost every week, advance in quotations is being anticipated. Dealers refrain from taking on long contracts though all are being kept busy in making deliveries. Heavy melting steel holds at $13 and the consumption now is greater than recently.

Cleveland, Oct. 13.—Iron and steel scrap transactions are few and of little consequence in this district although some quiet buying is being done by consumers. Inquiry is looking up and tonnage movement is expected. Prices are strong, several grades being marked up slightly in the past few days.

Philadelphia, Oct. 13.—Although large tonnages are lacking in the scrap market, mills are picking up numerous small and moderate lots aggregating a substantial total.

Sheets

Demand More Active, and Prices of Blue Annealed and Galvanized Are Advanced

HEAVIER buying in the sheet market has strengthened the price structure. The leading interest in the Pittsburgh district has been booking tonnage sufficient for capacity operations, and has raised its minimum on blue annealed to 2.30c, Pittsburgh, and on galvanized to 4.30c. Several other mills have advanced to the same basis.

SHEET PRICES, PAGE 982

Pittsburgh, Oct. 13.—Sheet orders continue to pour in on various makers here and in nearby districts. The American Sheet & Tin Plate Co.'s orders in the past week were on a basis exceeding 100 per cent of capacity, and no immediate interruption is foreseen. Because of the improvement in demand, particularly for blue annealed and galvanized, and because there is no longer necessity for accepting orders at a loss, several makers have advanced blue annealed to 2.30c minimum and galvanized to 4.30c, Pittsburgh. These increases, inaugurated last Friday by the American company, were not entirely unexpected. It seems that 2.25c prices on blue annealed and 4.20c to 4.25c levels on galvanized have disappeared. The present high cost of spelter has had considerable influence in establishing the advanced level on galvanized sheets. In black sheets, a stiffening process is under way but no direct advances have been put into effect. Whereas concessions had been made down to 3.05c base, today no quotations appear available at less than 3.15c, which has been the American company's level. The next advance undoubtedly will be on full-finished sheets, demand for which shows no sign of slackening. Automobile companies are expecting production schedules to keep up well into, and possibly through the winter. Almost every sheet consuming line is active as a buyer. Jobbers have been ordering more.

Boston, Oct. 13.—Galvanized sheets have dropped to 4.15c, Pittsburgh, and

black sheets are sluggish at 3.10c. Inquiry is slightly better, but the market remains quiet.

Youngstown, O., Oct. 13.—Well-balanced rolling schedules as well as increased spelter costs have prompted sheet producers to pay more attention to prices and this week finds the market on all grades firmly established. District offices of sheet producers were advised last week to quote black at 3.15c, blue annealed at 2.30c and galvanized at 4.30c. Some producers have nine weeks rolling ahead, others four and the average for this district is about five weeks. Tin mill black also is firm at 3.15c with producers scheduled five weeks ahead. Business is coming to the mills here in volume equivalent to that being rolled and from present indications this quarter's business will present the best showing from the standpoint of tonnage of any three months this year.

Chicago, Oct. 13.—The leading interest and the leading independent assert their minimums for the remainder of the quarter are 4.45c, Chicago, on galvanized, 3.35c on black and 2.45c on blue annealed sheets. It is claimed that the realization prices in the West are based upon this schedule. Bookings are heavier and operations are close to 100 per cent.

Philadelphia, Oct. 13.—Mills have been withdrawing their lower prices on sheets, and now generally quote 2.30c, Pittsburgh, on blue annealed; 3.15c on black and 4.30c on galvanized. New bookings are good, including a fair amount of contracting for fourth quarter.

Tin Plate

Market Is Quieter, But Mill Operations Are Sustained

TIN PLATE PRICES, PAGE 982

Pittsburgh, Oct. 13.—While orders for tin plate have been tapering off, considerable material is being rolled for use next year. Much of this tin plate will be shipped before the end of 1925, and other lots will be rolled but held by manufacturers for shipment subsequent to Jan. 1, 1926. Mill operations are sustained at 80 to 85 per cent, and it seems this will continue throughout the present month and possibly into November. From time to time, small export orders develop since foreign consumers often are willing to pay a higher price for the American product than that asked by the British makers. The domestic price still is $5.50 per base box.

Strip Steel

Most Consumers Covered For Fourth Quarter and Specifying Well

STRIP PRICES, PAGE 982

Pittsburgh, Oct. 13.—Customers of hot strip makers are practically all covered for fourth quarter at 2.20c. The increase of $2 per ton last week creates a 2.30c minimum for current business. Specifications against contracts are coming at a good rate from diversified industries, and while mills do not have sufficient tonnage to outline schedules far ahead, enough orders develop from week to week to sustain the average at 65 or 70 per cent. In cold strips, most orders are for wider sizes used for automobile lamps, fenders, etc. The price is firm at 3.75c.

Pipe

Mill Bookings Continue Steady —Cast Iron Demand Falls Off Slightly—Prices Unchanged

BOOKINGS of tonnage by pipe mills continues at a steady rate. Operations are being maintained between 80 and 90 per cent. Demand for cast iron pipe has dropped slightly. The 3000 tons for the water department at New York is reported going to two American makers although German interests were low bidders. Prices are steady and unchanged.

PIPE PRICES, PAGE 982 AND 1020

Pittsburgh, Oct. 13.—Jobbers of full weight merchant pipe are sending in more orders to replenish stocks. These became depleted during recent weeks when jobbers were expecting price declines because decreases were made in some other finished steel products. With the firming up of prices the possibility of a pipe decline becomes more remote and they now are bringing their stocks up to normal. These orders usually involve single cars or pairs. Oil country jobbers are ordering, but more sparingly, and while most producers have good backlogs of large outside diameter lapweld pipe, new orders for line pipe are scarce.

New York, Oct. 13.—Injunction proceedings have been brought by a local taxpayer to enjoin the local water department from placing about 3000 tons of pipe that German makers were low on to the next lowest bidders. It was reported that the pipe would be let to Warren Pipe & Foundry Co. and R. D. Wood & Co. The hearing is scheduled for Oct. 16.

Cast iron pipe demand continues active and prices firm. Beaver Construction Co. is low on the general contract for 2400 tons of 6 and 20-inch pipe for the water department.

Chicago, Oct. 13.—Contrary to normal experience, the position of cast iron pipe makers is improving. On smaller sizes makers generally are booked through November, while some makers are even further committed on larger sizes. Municipal buying in some lots is contributing greatly to the activity. The range on pipe 6-inch and over is $49.20 to $50.20, Chicago, with $4 additional for 4-inch.

Birmingham, Ala., Oct. 12.—A strong market, demand steady and an advance in prices announced sums up conditions in cast iron pressure pipe. Six-inch and over pipe is being held firmly at $42 with 4-inch and over, $46. Specifications are in sight for steady operation. Soil pipe-making shows a little improvement with quotations weak.

CONTRACTS PLACED

3000 tons, pipe for department of water, gas and electricity, New York, reported awarded Warren Pipe & Foundry Co. and R. D. Wood & Co.

3000 tons, work for Louisville, Ky., to United States Cast Iron Pipe & Foundry Co.

600 tons, 6 to 16-inch pipe, Broadmoor addition to Puget Mill Co., Seattle, to American Cast Iron Pipe Co.

400 tons, Litchfield, Ill., to National Cast Iron Pipe Co. and United States Cast Iron Pipe & Foundry Co.

150 tons, various sizes for gas department, Union Gas & Electric Co., Cincinnati, tonnage divided among three makers.

CONTRACTS PENDING

2400 tons, 4 to 12-inch cast iron pipe for Huntington, Long Island, N. Y.; contractors' bids asked.

300 tons, Connersville, Ind.; bids in.

2400 tons, 6 and 20-inch pipe for water department, New York; Beaver Construction Co. low on general contract.

2400 tons, Huntington, Long Island, N. Y.; Stanhy Construction Co., Long Island City, N. Y., low on general contract.

Improving Plant

Pittsburgh, Oct. 13.—The Crucible Steel Co. is planning extensive reconstruction at its Park works, Thirtieth and Smallman streets, it was announced recently. Several buildings will be erected, an award having been made, to the American Bridge Co. of 1600 tons of structural steel as previously announced by IRON TRADE REVIEW. Whether the present buildings will be torn down was not revealed. The company has several plants in the Pittsburgh district, and what was formerly known as the Singer works, now is being dismantled.

Trumbull Orders Up

Youngstown, O., Oct. 13.—Trumbull Steel Co. directors met last week but due to the absence of two directors the board did not make any decisions in regards of financing. Incoming

business was reported to be excellent and shipments at a higher rate than in September, when 38,500 tons were shipped. Pay roll increased $25,000 in two weeks indicating that capacity operations are maintained.

Beehive Coke Output Is Showing Increase

Washington, Oct. 13.—Production of beehive coke continued to increase during the week of Oct. 3, the estimated output being 185,000 net tons, an increase of 9000 tons, or 5.1 per cent, compared with the preceding week, according to the geological survey. Compared with the week of Oct. 4, 1924, the increase is 47,000 tons, or 34.1 per cent. Total production for 1925 to date is now 7,275,000 tons, or 3.2 per cent less than during the same period of 1924. The estimated weekly output by districts follows:

	—Week ended—		
	Oct. 3, 1925	Sept. 26, 1925	Oct. 4, 1924
Pennsylvania and Ohio	114,000	140,000	100,000
West Virginia	13,000	12,000	7,000
Alabama, Kentucky, Tennessee and Georgia	16,000	11,000	14,000
Virginia	5,000	5,000	9,000
Colorado and New Mexico	4,000	5,000	4,000
Washington & Utah	3,000	3,000	4,000
United States total	185,000	176,000	138,000
Daily average	38,000	29,000	23,000

Soft coal production has fallen somewhat from its recent highest point but it continues in heavy volume. For the week ended Oct. 3 production is estimated at 10,979,000 tons, a drop of 2.1 per cent from the week before. The production of hard coal is practically at a standstill due to the strike.

Bolts, Nuts, Rivets

Orders Become Heavier While Rivet Buying Still Is Light

NUT AND BOLT PRICES, PAGE 982

Pittsburgh, Oct. 13.—Manufacturers of nuts and bolts are booking specifications steadily against fourth quarter contracts, practically all customers having signed up. Operations continue about 60 or 65 per cent of capacity although rivet making is not that high, one or two plants still being practically idle. Rivet business is increasing however, from structural shops, railroads and other users. While some 2.30c prices recently were out, the general quotations today are 2.40c to 2.50c.

Chicago, Oct. 13.—Implement manufacturers are increasingly larger buyers of bolts and nuts. Demand from the automotive industry is holding up, while stove works are commencing to be factors. The fourth quarter gives every promise of rounding out an extremely good year. Prices are unchanged on the basis of 50, 10 and 10 off for large machine bolts.

Bars

Demand Continues To Grow and Deliveries Fall Back—Prices Are Firm

CONSUMPTION of soft steel bars continues on a wide scale and users are adding to their contract tonnages in a way to disturb rolling schedules in many instances. Railroad buying on a heavy scale would make a strong market. Some customers of larger makers find deliveries falling behind and are placing tonnages with other mills to obtain current needs.

BAR PRICES, PAGE 982

Chicago, Oct. 13.—Mill schedules are being disturbed by the doubling and tripling of tonnage before an original rolling has been completed. General manufacturing demand for soft steel bars continues remarkably large, as one interest puts it, and were railroad car buying to develop even in moderate proportions deliveries and prices doubtless would be affected. Specifications from bolt and nut makers are heavier. Reinforcing warehouses are taking more deformed billet bars. The smaller lines, like billet steel fence posts, for which one maker has booked 2500 tons of bars, are developing well. The level of 2.10c, Chicago, for soft steel bars is firmer.

Rail steel other than for structural bars is more generally quoted at 2.10c, Chicago. Bed and fence post demand is seasonably good. Bar iron buying is slightly improved, with the market unchanged at 1.90c, Chicago.

New York, Oct. 13.—The 1.90c base Pittsburgh price now is scarce on steel bars. Several makers have declined business during the past week at less than 2.00c. The new business is fair but necessarily is modified by the fact that a good many consumers bought heavily at 1.90c before the end of September.

Pittsburgh, Oct. 13.—Improvement on an increasing scale is met each week in merchant steel bars. Buyers are specifying freely against contracts, and while some of these were taken at lower prices, 2.00c is the current figure. Because deliveries of the Carnegie Steel Co. are becoming more deferred some of its customers are endeavoring to place orders with independent producers here and in Youngstown. Bar making in the latter territory is on a 100 per cent basis, and here the average is not much less. Cold bar finishers are the source of fairly large orders, and other consumers and jobbers are buying.

Buffalo, Oct. 13.—Inquiry for bars is slightly improved and gains in production continue, although they are not great. Mill service is not quite as good on small sizes but deliveries are not yet a vital factor. The price is 2.265c, Buffalo, to all but largest buyers.

Philadelphia, Oct. 13.—Steel bar sales continue small individually but aggregate a nice total. The refusal of some makers to book business under 2.00c has influenced the market only slightly. The market on steel bars continues 1.90c to 2.00c, Pittsburgh.

Cleveland, Oct. 13.—The strong characteristic of the steel bar market is the steady flow of business which goes on from week to week. Consumers in this territory are constantly requiring tonnage on a little higher basis. Some instances are noted where automobile companies have increased their orders by large amounts above the limits they had previously fixed as their requirements. Automotive parts manufacturers are operating on high schedules. Some forging shops are running on the best basis in six months. Deliveries are gradually falling back and forward buying is growing. In rim stock leading mills are two months filled. Prices are firm at 2.19c, Cleveland or 2.00c, Pittsburgh.

Cold Finished Steel

Consumers Seek First Quarter Tonnage at Present Prices

Pittsburgh, Oct. 13.—Plant capacity among cold bar finishers is well engaged although specifications do not give heavy backlogs. The present operating rate is 65 to 70 per cent on the average. Contracts on books are large, however, and already customers are endeavoring to place additional contracts for first quarter requirements at today's levels. Makers, however, are not accepting such offers, believing first quarter prices will be higher. The market is well defined at 2.40c, with 2.65c applying on less-than-carload lots.

Hoops and Bands

Advance Being Held and Specifications Against Contracts Good

HOOP PRICES, PAGE 982

Pittsburgh, Oct. 13.—Hot-rolled flats in hoop and band sizes were advanced last week $2 per ton, going from 2.40c to 2.50c minimum. Contracts have been booked heavily at 2.40c and specifications against those are liberal, mostly from cooperage and automotive industries.

Structural Shapes

Fall Demand Continues Exceptionally Heavy —Inquiries Begin to Diminish—Prices and Demand Steady

DEMAND for structural shapes continues to hold up exceptionally well for fall. New projects have begun to diminish somewhat, but fabricators expect to have good business for the remainder of 1925. Awards in the Chicago district during the past week aggregate about 10,000 tons. Approximately 14,000 tons will be produced by the Gary mills of the Illinois Steel Co. for the American Bridge Co. and United States Steel Products Co. for the Carquinez Straits bridge, San Francisco, which was booked last February. A Pittsburgh bridge will take 11,000 tons.

Prices continue without change. Fabricated quotations are slightly firmer, more shops boosting their levels, although some work continues to command a low price.

STRUCTURAL SHAPE PRICES, PAGE 982

New York, Oct. 13.—Various new projects are appearing in the structural market here and a fair run of new contracts is observed. A leading award calls for 4000 tons for a by-product plant for the Consolidated Gas Co. here. Fabricated material prices are tending upward with a definite indication that the turn has been made. Plain material continues 1.90c, Pittsburgh, on the general run of business.

Chicago, Oct. 13.—The exceptional rate of capacity in structural work is evidenced by the placing of nearly 10,000 tons in the immediate Chicago district last week, including 3850 tons for a power station at Waukegan, Ill. Studebaker Corp., South Bend, Ind., will place 1100 tons this week for a spring shop. It develops that the 14,000 tons taken by the American Bridge Co. for the Carquinez Straits bridge, San Francisco, will be fabricated at Gary. The Great Northern railroad continues to place bridge material. Chicago fabricating shops are more comfortable in regard to bookings than at any time in four months. Plain material is quoted at 2.10c, Chicago.

Boston, Oct. 13.—The structural steel market continues active with a good volume of contracts let and much work in sight. Prices are firmly established at 1.90c, Pittsburgh, or 2.265c delivered. The Salada Tea Co. let 750 tons for a new plant in Boston.

Pittsburgh, Oct. 13.—Structural shape fabricators in the Pittsburgh area are almost a unit in believing that this fall will not witness the usual letdown in awards. Competition still is keen, as witnessed by the fact that one job was taken this week on the basis of $62 per ton. Prospective work at Pittsburgh includes the 11,000-ton Liberty bridge job, on which bids will be asked this week; several school buildings, and a bridge at McKeesport, Pa. An attempt is being made to establish 2.00c as a minimum on plain material but variations from this price under certain conditions still prevail.

Cleveland, Oct. 13.—Fabricators of structural shapes again report a dull week, one reporting no attractive inquiries received. Business in the territory is better than that in the city. Plain material in an increasing number of cases is bringing 2.19c Cleveland or 2.00c Pittsburgh, while fabricated prices are stiffening.

Philadelphia, Oct. 13.—Low structural prices have not disappeared entirely as yet and the range continues 1.90c to 2.10c, base eastern mills, or 1.80c to 2.00c, Pittsburgh, with lower on some exceptionally large tonnages. Eastern mill bookings have increased and deliveries are stretching out further, averaging one to four weeks.

Awards Compared

	Tons
Awards this week	35,181
Awards last week	55,920
Awards two weeks ago	26,306
Awards this week in 1924	18,184
Average weekly awards, Sept.	29,696
Average weekly awards, 1925	32,997

CONTRACTS PLACED

4000 tons, by-product plant for Consolidated Gas Co., New York, to McClintic-Marshall Co.

3850 tons, power station for Waukegan Generating Co., Waukegan, Ill., to American Bridge Co.

3500 tons, Sesquicentennial celebrations buildings, Philadelphia, to Jones & Laughlin Steel Corp. Michael Melody & Sons Co., general contractor.

2200 tons, Reading Co. grain elevator, at Port Richmond, Philadelphia, to Belmont Iron Works, previously reported to Bethlehem Fabricators, Inc. M. A. Long Co., Baltimore, general contractor.

2200 tons, two Jersey Central railroad bridges, to American Bridge Co.

2000 tons, Minskoff apartment, 101st street and Broadway, New York, to Hedden Iron Construction Co.

1700 tons, viaduct for Florida East Coast railroad, to Virginia Bridge & Iron Co.

1600 tons, Shelbourne hotel addition, Atlantic City, N. J., to Shoemaker Bridge Co.

1500 tons, addition to A. O. Smith Corp., Milwaukee, to Milwaukee Bridge Co.

1500 tons, Great Northern railroad bridges, to Milwaukee Bridge Co.

1450 tons, Nissen office building, Winsted-Salem, N. C., to the McClintic-Marshall Co.

1100 tons, parcel post building for Burlington railroad at Omaha, to Paxton & Vierling Iron Works.

700 tons, plant addition for Atwater Kent Co., Philadelphia, to Jones & Laughlin Steel Corp., Irwin E. Leighton, general contractors.

750 tons, Old National bank, Lima, O., to the American Bridge Co.

700 tons, conveying bridges for Universal Portland Cement Co., Buffington, Ind., to American Bridge Co.

630 tons, Allen creek drain in Washtenaw county, Charlotte, Mich., to Beach Bros. Mfg. Co.

600 tons, Masonic temple, Portland, Oreg., to Wallace Equipment Co.

600 tons, plant for Hazard Mfg. Co., Wilkes Barre, Pa., to Bethlehem Fabricators, Inc.

600 tons, addition to Buffalo General Electric Co., River road plant, Buffalo, to Fort Pitt Bridge Works.

600 tons, Menominee valley viaduct for Milwaukee Electric Railway & Light Co., Milwaukee, to Wisconsin Bridge & Iron Co.

500 tons, miscellaneous work, including 125 tons for the Dormont bank, Pittsburgh, and 100 tons for the car dumping plant of the Duquesne Slag Products Co., Pittsburgh, to the Guibert Steel Co.

500 tons, bridges for Greensboro, N. C., to McClintic-Marshall Co.

500 tons, Hotel Chelsea, Atlantic City, N. J., to New York Shipbuilding Co.

400 tons, building for Sheffield Farms, New York, to George A. Just Co.

300 tons, temporary subway construction for Frederick L. Cranford, New York, to American Bridge Co.

280 tons, dam gates, Sanderson-Porter Co., Cheat Haven, Pa., to the J. E. Moss Iron Works, Wheeling, W. Va.

200 tons, Phoenix Portland Cement Co. building, Nazareth, Pa., to Belmont Iron Works.

200 tons, replacement stringers for Great Northern railroad No. 4 ore dock at Allouez, Wis., to American Bridge Co.

121 tons, high school at Marquette, Mich., to Worden-Allen Co.

100 tons, high school at Leetsdale, Pa., understood to have been awarded the McClintic-Marshall Co. by R. B. McDaniel Co., New Brighton, Pa., general contractor.

Tonnage unstated, building for Grand Rapids Trust Co., Grand Rapids, Mich., to Whitehead & Kales Iron Works.

750 tons, office building, Sixteenth and Chestnut streets, Philadelphia, to Phoenix Bridge Co.

500 tons, Paines Hosiery mill, Winston Salem, N. C., to Phoenix Bridge Co.

250 tons, Lycoming creek bridge, Hepbarnville, Pa., to Phoenix Bridge Co.

230 tons, building at Amherst, O., for Cleveland Stone Co., to Forest City Structural Steel Co.

200 tons, grand stand, York, Pa., to Phoenix Bridge Co.

175 tons, office building, Thirteenth and Chestnut streets, Philadelphia; to Phoenix Bridge Co.

150 tons, state school, Rome, N. Y., to Phoenix Bridge Co.

135 tons, tunnel under Huron road for Halle Bros. Co., Cleveland, to Forest City Structural Steel Co.

110 tons, art museum addition, Philadelphia to Phoenix Bridge Co.

CONTRACTS PENDING

11,000 tons, Liberty bridge at Pittsburgh; bids to be asked this week by county commissioners.

6000 tons, 30-story theater building, for Dwight P. Robinson, Inc., Fifty-fourth street

and Sixth avenue, New York; pending.

6000 tons, insurance building, 150 Williams street, New York; pending.

2000 tons, Elks club, Brooklyn, N. Y.; pending.

1500 tons, Bing & Bing apartment, Park avenue, specifications revised.

1000 tons, office building, Hanover square, New York; pending.

700 tons, office building addition, Sixth avenue and Forty-second street, New York; pending.

1000 tons, factory for Bemberg Corp., Johnson City, Pa.; pending.

700 tons, bridge repairs for New York Central railroad at Chicago; pending.

300 tons, power house at Braddock, Pa.; bids closed early this week.

250 tons, Lee school, Pittsburgh; bids being taken by the Pittsburgh board of education.

165 tons, 220-foot steel span over Washougal river, Portland, Dreg.; Union Bridge Co. low bidder.

125 tons, Midland, Pa., high school; second lot of bids closed Oct. 12. W. G. Eckles & Co., New Castle, Pa., are architects.

100 tons, spring shop for Studebaker Corp., South Bend, Ind.; pending.

100 tons, loading platform, Chevrolet Motor Car Co., Cincinnati; bids in.

100 tons, alteration to loft building, 325 East Thirty-eighth street, New York; pending.

100 tons, addition to Pomerene hall, Ohio State university, Columbus, O.; bids in.

Tonnage unstated, public school building off Center avenue near Herron avenue, Pittsburgh; J. T. Steen & Sons appointed by Pittsburgh board of education to draw up plans.

Tonnage unstated, Riverton bridge at McKeesport, Pa.; bids to be asked before the end of the year.

Tonnage unstated, $350,000 training school for teachers, Fifth avenue and Bouquet street, Pittsburgh; plans being prepared for the Pittsburgh board of education.

Tonnage unstated for a $450,000 addition to the Langley high school, Pittsburgh; bids about to be asked.

Foundry Orders Steady

Washington, Oct. 13.—Unfilled orders for foundry equipment on Aug. 1, according to reports just received by the census bureau, showed a decrease from those of the last two months, the total being valued at $457,925 as compared with $460,383 on July 1, and $463,431 on June 1. Shipments during July amounted to $352,603, as compared with $318,442 during June. July foundry equipment sales amounted to a value of $353,561, as compared with $334,424 during June.

Concrete Bars

Small Lot Business Still Good — Prices Continue Steady—Inquiries Fewer

SALES of concrete bars again are confined almost entirely to small tonnages. Inquiries have slowed up somewhat and sellers are anticipating a drop in the October total from September levels. Prices continue unchanged and in most districts firm at 2.00c, Pittsburgh equivalent. Stock buying is at a good rate.

REINFORCING BAR PRICES, PAGE 982

Chicago, Oct. 13.—Shipments of reinforcing bars in October seem likely to be the highest for any month this year. Pending work still is proportionately larger than actual awards. Two new projects each involving 500 tons or more of bars are developing. The reinforcing bar market is unchanged at 2.60c, Chicago warehouse.

Boston, Oct. 13.—Warehouse prices on reinforcing bars are firmer. Several sales ranging from 70 tons to 100 tons have been placed at 3.10c, Boston warehouse. For mill shipment the price is about 2.40c, Pittsburgh. The total tonnage for the week declined as against the previous week but inquiry holds strong.

Philadelphia, Oct. 13.—The largest concrete bar order to be placed here in a long time went last week to European mills. M. A. Long Co., Baltimore, general contractor, placed 3600 tons for the grain elevator to be erected by the Reading Co. at Port Richmond, Philadelphia, to F. R. Phillips & Sons Co. which will import the steel.

Buffalo, Oct. 13.—Demand for reinforcing bars holds steady in this district. Bookings of the last week include several lots ranging up to 350 tons and several carload inquiries are pending. The price is steady, 2.265c being quoted on bars from mills and 2.65c on stock lots.

Pittsburgh, Oct. 13.—Reinforcing concrete bar orders throughout the past week have been relatively small. Inquiries are more numerous, one interest receiving seven in Monday morning's mail, the largest of which involved 250 tons. Inquiry rate is encouraging. Prices are unchanged, with more of a tendency to quote 2.00c as a minimum. Several sellers of bars from Youngstown warehouse stocks are quoted 2.50c, Youngstown, or 2.60c, Pittsburgh, depending upon which is most favorable. The freight rate is 11 cents from Pittsburgh to Youngstown.

Cleveland, Oct. 13.—Activity in the concrete bar market here is limited to small tonnage lots. No inquiries or awards last week involved over 100 tons each. Interest is centered in the Willow sewage disposal plant which will take 2000 tons. Bids go in Oct. 28. New billet prices continue 2.00c Pittsburgh to 2.20c Cleveland. Rail steel bars are 1.80c to 1.90c mill while stock continues 2.50c Youngstown to 3.10c Cleveland.

Awards Compared

	Tons
Awards this week	8,230
Awards last week	3,857
Awards two weeks ago	3,435
Awards this week in 1924	1,520
Average weekly awards, Sept.	5,463
Average weekly awards, 1925	6,173

CONTRACTS PLACED

3600 tons, grain elevator at Port Richmond, Philadelphia, for Reading Co., let by M. A. Long Co., Baltimore, general contractor, to F. R. Phillips & Sons Co. for foreign steel.

600 tons, Brooklyn State hospital, to Fireproof Products Co. General contractor, De Riso Bros., Inc., New York.

450 tons, seven bridges for south park commission, Chicago, to Truscon Steel Co.; Avery Brundage, 110 South Dearborn street, Chicago, general contractor.

450 tons, Ford Motor Co. building, Somerville, Mass., to Truscon Steel Co.

375 tons, Hunters Point station, Consolidated Gas Co., New York, to McClintic-Marshall Co. General contractor, W. F. Kenny Co., New York.

350 tons, addition to River road plant, Buffalo General Electric Co., to unstated Buffalo fabricator.

330 tons, Roseland and Irving Park Y. M. C. A. building, Chicago, to Concrete Engineering Co.

300 tons, Standard Sanitary Mfg. Co. warehouse, Newark, N. J., to Concrete Steel Co. Contractor, J. W. Ferguson, Paterson, N. J.

250 tons, Gimbel Bros. building, Philadelphia, to Davis Bros.

250 tons, Otis Elevator Co. building, Yonkers, N. Y., to Donner Steel Co.

225 tons, Central Railroad of New Jersey bridge, Elizabethport, N. J., to Igoe Bros.

175 tons, public school at Springfield avenue and Fifty-eighth streets, Chicago, to Concrete Engineering Co.

150 tons, house of correction, Philadelphia, to Federal Alloy Steel Corp.

150 tons, Atwater Kent Mfg. Co. building, Philadelphia, to Federal Alloy Steel Corp.

150 tons, state road work, Columbia, N. Y., to Truscon Steel Co.

125 tons, bridge over Hackensack river, Jersey City, N. J., to Igoe Bros. General contract to Stillman-Delehanty Ferris Co.

100 tons, Commodore apartment, Chicago, to Calumet Steel Co.

100 tons, including Toronto, O., school, 50 tons, to the Concrete Steel Co.

100 tons, Columbia university student hall, New York, to Truscon Steel Co.

CONTRACTS PENDING

3500 tons, additional for Hunters Point station, of Consolidated Gas Co., New York; general contract to Wm. F. Kenny Co.

1500 tons, Harbour Trust Co. building, Boston; general contract to James Stewart Co., New York.

400 tons, warehouse, Kroger Grocery & Baking Co., Cincinnati, general contract awarded to Middle States Construction Co.

320 tons, L. A. Dreyfus building, Rosebank, Staten Island, N. Y.; general contract to Turner Construction Co.

250 tons, Lee school, Pittsburgh; bids taken by the Pittsburgh board of education until Oct. 17.

200 tons, Pittsburgh Parking Garages, Inc., second unit; bids about to be asked by the Mellon-Stuart Co., general contractor.

200 tons, Hamilton apartments, Highland avenue, Pittsburgh; bids taken until Oct. 19.

175 tons, Gilmore Drug Co. building, Second avenue, Pittsburgh; bids all in.

100 tons, Crawford avenue switch house for Commonwealth Edison Co., Chicago; pending.

Tonnage unstated, 7-story addition to Cook county hospital, Chicao. Eric E. Hall, 123 West Madison street, Chicago, architect.

Tonnage unstated, 7-story apartment building and hotel, Webster and Sedgwick streets, Chicago. Plans by Hooper & Janusch, 879 North State street, Chicago.

Rails, Cars

Chicago District Builders Figuring 10,000 Cars—Estimate 300,000 Tons Rails Placed

BUILDERS in the Chicago districts are figuring 10,000 cars of which 8500 are for western roads. Pennsylvania awarded repairs on 6000 freight cars. Missouri Pacific has entered the market for 2000. Makers estimate 300,000 tons of rails placed on 1926 programs, exclusive of the Birmingham district. Western roads are slow on current rail orders.

RAILROAD TRACK MATERIAL PRICES, PAGE 982

Chicago, Oct. 13.—Chicago district car builders now are figuring on 10,000 cars, of which 8500 are for strictly western roads. This includes 500 gondolas and 500 automobile cars additional for the Frisco, 400 box for the Kansas City, Mexico & Orient, 500 automobile for the Missouri-Kansas-Texas, 1200 of various types for the Denver & Rio Grande Western and 2000 box, stock and gondola cars for the Missouri-Pacific. The Illinois Central has placed 200 stock and 200 flat cars with the Standard Steel Car Co. The American Car & Foundry Co. has booked 275 box cars for the Cuban railways.

It is estimated that exclusive of rails placed in the Birmingham district about 300,000 tons have been contracted for definitely by the railroads for 1926 delivery. Probably 200,000 tons more will be placed within ten days. The western roads are lagging behind their placements for 1925 delivery and some have not yet taken out all of their contract material for this year. Track fastening orders have been commensurate with the rails.

New York, Oct. 13.—While mostly small orders, car buying aggregates a fair total. New inquiries are slack. Several sizable lists are pending but for the most part, these are in the Middle West. Locomotive buying includes four for Cuban railroads, awarded the Baldwin Locomotive Works. American Locomotive Co. booked 10 for the Chesapeake & Ohio and 10 for the New Haven. The Iquique Pintadoes railway, Chile, is inquiring for 41 locomotives and the Missouri Pacific for 10 heavy Santa Fe type.

Indications are that the Pennsylvania and Reading railroad inquiries will appear in the latter part of October.

Pittsburgh, Oct. 13.—Light rail orders are increasing in number and in size. The largest order of the past week was for 500 tons, but several 150 or 200-ton lots are noted. Prices below 1.70c still appear but 1.60c is less frequent.

Track fastening orders are of piecemeal character. Large orders are being placed in the West but the railroads supplying their wants in this market, have not come out as yet. The Pennsylvania and other lines have been buying small quantities of both spikes and tie plates. Some spike manufacturers which have been operating lightly have started up again this week, having accumulated orders for a short run.

ORDERS PLACED

Canadian Pacific, 100 ballast cars, to the Canadian Car & Foundry Co.
Chicago, South Shore & South Bend, 25 coaches, to Pullman Car & Mfg. Corp.
Chile Exploration Co., 100 ore cars, to Pressed Steel Car Co.
Cuban railways, 275 box cars, to the American Car & Foundry Co.
Illinois Central 400 cars, 200 stock and 200 flat cars, to Standard Steel Car Co.
Indian Refining Co., Lawrenceville, Ill., 10 triple compartment, 6000-gallon tank cars, to Standard Tank Car Co.
International & Great Northern, 1000 box and automobile cars, to unnamed builder.
Missouri Pacific, 15 baggage cars, to American Car & Foundry Co.
Palace Poultry Co., 50 poultry cars, to the Illinois Car & Mfg. Co., in addition to 50 placed recently.
Tidal Refining Co., 125 tank cars, to American Car & Foundry Co.
Valvoline Oil Co., Butler, Pa., 10 80,000-gallon, 40-ton tank cars, to Standard Tank Car Co.
Wabash, 12 automobile cars, to American Car & Foundry Co.
Pennsylvania railroad, 6000 freight car repairs, as follows: 3000 to Ralston Steel Car Co., 1000 to Youngstown Steel Car Co., 1000 to Buffalo Steel Car Co. and 1000 to Greenville Steel Car Co.
New England Fuel Transporation Co., 100 mine cars, to Watt Mine Car Wheel Co.
Turkey Gap Coal & Coke Co., 100 mine cars, to Philip Mine & Milling Supply Co.
Alan & Garcia, 25 mine cars, to American Car & Foundry Co.

ORDERS PENDING

Atlantic Coast Line, 500 composite box cars; pending.
Burlington, 500 center sills; pending.
Chesapeake & Ohio, three postal cars; pending.
Indian State railways, 5640 broad gage and 910 medium gage, 4-wheel wagons, bids asked; this inquiry was referred to in last week's issue but through error, broad gage wagons were mentioned as numbering 564.
Kansas City, Mexico & Orient, 50 automobile cars; pending.
Kiochow Tsinan railway, China, 80 steel box cars, bids, bids asked.
Missouri Pacific, 2000 automobile, box, stock and coal cars and five standard steel dining cars; purchase authorized.
National Tube Co., 50 hopper cars bodies; pending.
United Alloy Steel Corp., 15 gondola cars; bids asked.
Denver & Rio Grande, 1200, various types; pending.

Wire

Small Orders Rule With Prices Steady—Late Fall Trade Opens—Nails Show Improvement

WESTERN makers find fall and spring demand reflected in orders now being booked, while in the East this is not expected to be apparent for a month. Prices show some remaining weakness but shading is less apparent. Jobbers are buying more freely and manufacturers are taking better tonnages. Nails have shown improved demand in some sections.

WIRE PRICES, PAGE 982

Pittsburgh, Oct. 13.—Demand for wire products may not start in volume for 30 days, it is believed. In the meantime, small orders rule and mill operations are somewhat limited around a 60 per cent average. Occasionally orders are placed in single carload lots and while 2.60c base has appeared recently in the East, 2.65c is still the minimum quoted here, with 2.50c the plain wire base. Manufacturing wire remains in good demand. Cement-coated nails are weak at 1.85c although no prices below 1.80c have appeared. The Pittsburgh Plate Glass Co. was a recent purchaser of a fair sized tonnage.

Boston, Oct. 13.—Gradual improvement is shown in the nail market, which has been slow for two months or more. Wire is firm at 2.65c, Worcester, and wire consumers are more active.

Chicago, Oct. 13.—The wire and nail price schedule, based at 2.55c, Chicago or western mill, for plain wire and 2.70c for wire nails, is being more closely adhered to. Manufacturing lines reflect the beginning of late fall and early spring trade. Demand for jobbing lines shows consistent improvement.

Farm Tools Set Record

Washington, Oct. 13.—Exports of farm machinery in August, valued at $11,318,423, set a new high mark, according to reports to the department of commerce. This is an increase of about $3,000,000 over exports of April, the previous high point. The feature of August exports was the shipment of 9191 wheel tractors valued at $5,254,161. Threshers was the only other classification, exports of which were valued at more than $1,000,000 in August.

Nonferrous Metals

All Metals In Strong Market—Copper Registers Sudden Recovery and Zinc Continues to Exhibit Strength With Tin and Lead Firm

Prices of the Week

	Copper			Spot Tin, N. Y.	Lead New York	Lead St. Louis	St. Louis	Aluminum	Antimony	Nickel
	Electro delivered	Lake delivered	Casting refinery	Straits	Lead	East	Zinc	98-99%	Spot	Ingot
	Cents per pound									
Oct. 7	14.37½	14.50	13.72½	60.87½	9.60	9.30	8.05	27.00	17.25	34.00
Oct. 8	14.37½	14.50	13.70	61.00	9.60	9.30	8.02½	27.00	17.05	34.00
Oct. 9	14.50	14.62½	13.87½	61.75	9.60	9.35	8.12½	27.00	17.12½	34.00
Oct. 12	Holiday									
Oct. 13	14.62½	14.75	13.87½	62.25	9.60	9.35	8.22½	27.00	17.25	34.00

NEW YORK, Oct. 13.—All metals are strong and sales have been active in the past few days. A sudden recovery in copper and the cut in zinc stocks on account of big shipments have been the outstanding features.

Zinc—Zinc has been going up rapidly for a number of days because of export demand coming in addition to fair domestic buying. The rise had gone a long way before statistics came out and then the figures clinched the impression of strength. Shipments were 52,620 tons in September, the largest this year and larger than other years at this season. Of this sum 6074 tons were for export, while the total was larger than the steady output so that stocks were cut more than 5000 tons in the month to 11,796 tons.

Copper—After holding at 14.37½c delivered for several days in a quiet market, with the London market easy, the copper market turned quickly at the end of last week. On Thursday sales became more active and it was reported that some export bids were turned down as too low. These two circumstances, together with the probable need for metal abroad after the foreign market had been trying to get the price as low as possible, caused London to jump suddenly on Friday and then good buying for domestic account was done at 14.50c Connecticut and some in the Middle West at ⅛-cent more for electrolytic and Lake.

Lead—The heavy metal has been selling moderately in the past few days, so that with good shipments on old orders the output is being used up rapidly. The largest interests are selling at 9.50c New York and 9.25c E. St. Louis but have no metal for prompt shipment, so that the latter commands a small premium, and in some instances sellers are able to command a premium a month ahead.

Tin—This metal is in a tight position statistically and moreover stocks are so closely held in this country that spot continues to command a premium. Shipments into consumption in this country and in England are unusually large for this season. However, it is believed that the situation on stocks and metal in sight will improve this month. The high price makes sudden changes more possible.

Aluminum—Buying of aluminum is moderately active, with users fairly well covered this year. Shipments are heavy, largely on account of big automobile business. Some users are inquiring among importers for next year and it is indicated that prices will be firm at 27c and 28c.

To Rebuild at Conemaugh

Blairsville, Pa., Oct. 13.—Following action this week by the Blairsville chamber of commerce, it was definitely decided that the Conemaugh Iron Works, employing several hundred men, would remain in Blairsville. The company is owned by Latrobe capital and a committee from the owners stated that if the plant was to be rebuilt in Blairsville they desired to place a bond issue of $300,000 on the plant. The buildings were damaged by fire several weeks ago and it is planned to rebuild and moderize the plant.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.12½
Copper, hot rolled	22.75
Zinc, ga. 9 to 17	11.00
Lead full sheets (cut ¼c more)	13.25 to 13.75
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.75
Copper	24.75
RODS	
High brass (round ⅝ to 2½-inch)	16.87½
Naval brass	19.62½
WIRE	
Copper	16.37½ to 16.50
High brass	19.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25
Chicago	9.75
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
New York	7.25
Chicago	8.50
Cleveland	7.50 to 7.75
ZINC	
New York	4.50
Cleveland	4.50 to 4.75
HEAVY COPPER AND WIRE	
New York	11.75
Chicago	11.75
Cleveland	11.25 to 11.50
RED BRASS TURNINGS	
New York	9.25
Chicago	8.75
Cleveland	8.50 to 8.75
YELLOW BRASS TUBING	
Cleveland	7.50 to 7.75
LIGHT COPPER	
New York	9.50
Chicago	10.75
Cleveland	9.50 to 9.75
LIGHT BRASS	
Chicago	8.00
Cleveland	5.75 to 6.00
ALUMINUM	
Borings, Cleveland	12.00 to 15.00
Old sheet and cast, Cleveland	17.00 to 20.00
Clippings, Cleveland	21.00 to 22.00

Secondary Metals

Remelt aluminum No. 12	23.50 to 24.00
Brass ingot 85-5-5-5	12.00 to 12.25

Coke By-Products

Sulphate Prices Advanced—Distillates Steady—Naphthalene Slack

New York, Oct. 13.—Quotations on sulphate of ammonia have been advanced to a range of $2.95 to $3, delivered. Production is well taken up with contracts, and spot demand is good. Prices on material for export, however, are nominally unchanged around $2.75 port, in double bags. There is little export demand.

Prices on distillates are steady. Pure benzol is quoted at 24 cents delivered in tanks and 29 cents in drums and 90 per cent at 23 cents in tanks and 28 cents in drums. Xylol in tank lots is quoted at 26 cents, works, and in drum lots at 32 cents. Solvent naphtha is quoted at 26 cents in tanks and 21 cents in drums. On both these products deliveries are fairly well advanced.

Phenol is unchanged at around 22 cents producers' plants, for spot and future shipments, while naphthalene in flakes is steady at 5½ to 6½ cents, works, and in balls at 6½ to 7½ cents, works. Due to seasonal influences trading in naphthalene is slack.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.24	
Toluol	0.26	
Solvent naphtha	0.26	(nominal)
Commercial xylol	0.26	(nominal)
Phenol	0.22	0.22

Per Pound at Producers' Plants

Naphthalene flakes	0.05½ to 0.06½	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½	0.06½ to 0.07½

Per 100 Pounds Delivered

Sulphate of ammonia	$2.97½	

Northwest Buys Little

Immediate Needs Only Business Being Booked—
Prices Are Unchanged and Steady

SEATTLE, Oct. 7.—Fall buying of iron and steel is confined to immediate needs, no forward purchasing of moment being recorded. However, the volume of trade is good, the present month showing a gain over the first week in September. The country districts are ordering materials for fall repair work and while no heavy buying movement is anticipated during the remainder of the year, the turnover in the next 90 days is expected to be steady and of fair proportions.

Pig Iron and Coke

The market is practically unchanged, with prices stationary and demand slow. Foundry operations are restricted and most plants have sufficient material on hand for the remainder of the year. As far as known no business for first quarter delivery has yet been placed. Deliveries of iron and coke from Great Britain and the Continent under old contracts are being made. One shipment of 2000 tons of German coke arrived last week in fine condition. This grade is quoted here at $13 to $14 while continental pig iron is offering at the same prices of $24.50 and $25.

Bars, Plates and Shapes

The volume of steel bar business is fair, the local mill reporting unchanged operations, prices unchanged at 2.45c. Jobbing prices are still 3.25c here although at Portland bars are quoted at 2.85c, foreign steel being felt as a competitive factor.

Mill prices of plates and shapes are holding their own at 2.30c and 2.35c respectively, nothing lower being reported. No large plate contracts are pending in this district. However, the turnover of light plates, 3/16 to ⅜-inch is fairly good, considerable material being used in tank and boiler repair work.

Shapes are moving fairly well, local fabricating shops being busy with a number of large contracts. City of Seattle is planning construction of a second steel bridge over the Duwamish river, the structure erected last year at Spokane street being inadequate for the increased travel. General contract for the $1,000,000 Masonic Temple at Portland went to Dougan & Chrisman and the contract for 600 tons of structural steel was awarded to the Wallace Equipment Co., Seattle. The Union Bridge Co., Portland, at $42,098 was low bidder for a 220-foot steel span to be built by the state over Washougal river. The steel, 165 tons, has not yet been sublet.

Wholesale jobbing prices are unchanged. The volume of jobbing trade is increasing although business is still confined to small tonnages. The country districts are buying more heavily. Sheets are showing more activity and the turnover is larger than a month ago. Rivets, bolts, tubing and shafting are also in good demand while light plates are moving in larger volume.

The American Cast Iron Pipe Co. has been awarded 600 tons of cast iron pipe by the Puget Mill Co. for its Broadmoor addition.

Old Materials

There is no change in either steel or No. 1 cast iron scrap. For the former $10.50 and $11 gross are the quotations at the local steel mill, a reasonably good run of material being shipped in. Cast iron is in poor demand due to inactivity at the foundries and the competition of cheaper grades of pig iron. Japanese buyers are interested in scrap material but they are working on a close margin and are looking for bargains. Their position is somewhat more difficult due to increased water rates across the Pacific.

Unfilled Tonnage Makes Decided Upturn

For the first time since February of this year unfilled tonnage of the United States Steel Corp. as of Sept. 30 shows a gain over the preceding month. After six consecutive months of decline the tide has turned and the close of September showed tonnage on its books was 5.8 per cent larger than 30 days before. Tonnage statistics follow:

Date	Total	Change, tonnage	Change, per cent	
Sept. 30, 1925	3,717,297	204,494	+ 5.8	+
Aug. 31, 1925	3,512,803	26,664	— 0.756	—
July 31, 1925	3,539,467	170,991	— 4.6	—
June 30, 1925	3,710,458	339,342	— 8.3	—
May 31, 1925	4,049,800	396,768	— 8.4	—
Apr. 30, 1925	4,446,568	416,996	— 8.6	—
Mar. 31, 1925	4,863,564	421,207	— 7.0	—
Feb. 28, 1925	5,284,771	247,488	+ 4.8	+
Jan. 31, 1924	5,037,323	220,647	+ 4.58	+
Dec. 31, 1924	4,816,676	784,707	+19.1	+
Nov. 30, 1924	4,031,969	506,699	+14.3	+
Oct. 31, 1924	3,525,270	51,490	+ 1.48	+
Sept. 30, 1924	3,473,780	184,203	+ 5.59	+
Aug. 31, 1924	3,289,577	102,505	+ 3.02	+
July 31, 1924	3,187,072	75,433	— 2.3	—
June 30, 1924	3,262,505	365,584	—11.1	—
May 31, 1924	3,628,089	580,358	—13.79	—
April 30, 1924	4,208,447	574,360	—12.008	—
Mar. 31, 1924	4,782,807	130,094	— 2.6	—
Feb. 29, 1924	4,912,901	114,472	+ 2.3	+
Jan. 31, 1924	4,798,429	350,183	+ 7.8	+

Will Sell Coke

Sales of the by-product coke produced at the new plant of the Hudson Valley Coke & Products Corp., Troy, N. Y., will be handled by E. Arthur Tutein, Inc., 52 Vanderbilt avenue, New York, it has been announced. Shipments from this plant will start about Oct. 15, substantial tonnages of coke already have been booked, chiefly consisting of coke for domestic heating purposes.

Fabricators To Quote on New Basis

New York, Oct. 13.—A committee of six, consisting of three engineers and three steel fabricators has been appointed by Charles L. Eidlitz, chairman of the board of the newly organized structural steel board of trade, New York, to prepare a statement as to what shall be considered essential in plan completion and detail, to enable the fabricator to make a just and proper estimate; also to provide a workable method for taking care of exceptional cases where the conditions stipulated cannot be complied with. This action was taken at a recent meeting of structural steel engineers and board of trade members, in an effort to forestall confusion that may arise as a result of fabricators' plan of discarding the policy of quoting prices on the per pound basis for steel erection. As previously noted, the date for this change has been fixed for Nov. 1.

Chairman Eidlitz, addressing the engineers, said in part:

"We do not intend in any way to regulate or fix prices. We want to have intelligent competition, but we do want and expect to give an absolutely fair deal. We shall be glad to have you men advise us of any action on the part of any members which seems to you to be contrary to this idea."

The committee includes J. Lewis Hay, George Lund and Jacob Loewenstein for the fabricators and S. F. Holtzman, C. J. Jepperson and H. G. Balcomb, for the engineers. The last named, whose address is 10 East Forty-seventh street, was named chairman. The committee met Oct. 5 to organize and undertake the work.

Fluorspar Is Imported

New York, Oct. 13.—Considerable fluorspar continues to be placed for importation from Europe. Several lots sold during the past week involved 100 to 200 tons each. Prices vary considerably from $16, to $17.50 per net ton duty paid tidewater for the 85 and 5 per cent grade.

Americans Buy British Iron

One Producer Books 20,000 Tons for Shipment to Philadelphia Foundrymen—Large Tonnages Also Placed Recently on Continent — English Market Situation Stronger — More German Works Closing

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Oct. 13.—(*By radio*)—The market situation in Great Britain appears to be improving. The feature of most importance from the international viewpoint today is that Guest, Keen & Nettlefolds Ltd. have contracted to ship 20,000 tons of pig iron to Philadelphia foundrymen. Deliveries begin this month and extend through January. A merchant firm has booked in recent months orders for 60,000 tons of pig iron for shipment to American users. Most of the iron is from the Continent.

The pig iron market is slightly stronger. Price reductions have been checked, and three furnaces are restarting.

South Indian railways have ordered 231 coaches, and the home railroads are taking more bridge steel. India is buying galvanized sheets briskly. Demand for tin plate generally is improving.

A progressive stoppage of German works because of financial difficulties is noted. Several thousand tons of steel bars have been sold by the Germans recently for export at £5 8s ($26.14). Most of the tonnage is to be shipped to Japan.

Several sidelights on the industry are of interest this week. The firm of John Cochrane is erecting works at Middlesbrough for the manufacture of steel tubes 30 feet long, 8 inches in diameter. The board of education is considering building numerous school houses of sheet steel. The United Steel Co. has been summoned for nonpayment of local rates. It claims the tax is equal to 6 shillings ($1.45) per ton of steel.

British Steel Market Finds Business Broader

BIRMINGHAM, Eng., Oct. 5.—(*European Staff Service*)—The position is slightly more cheerful in the iron trade, business coming out a little more freely no doubt assisted by the substantial fall in the values of most products. After a long period of stagnation in Cleveland the export trade has revived a little, and that market has been assisted by a notable increase in home buying. The export returns which are now due, are expected to show a decided fall in shipments compared with shipments made during August.

Sterling $4.84

Price weakness continues a feature of the markets practically in all departments. No. 3 Cleveland G. M. B. is easier at £3 6s 6d ($16.09) despite some improved buying both on home and foreign account. East coast hematite is sold at £3 14s (17.90) a figure which would probably be shaded for a good contract. In the Midlands, the prices of Northampton and Derbyshire pig iron have further weakened, but buying is restricted to small parcels. The quarterly meeting is due next week, and may possible develop a little forward business, a feature, however, which has become very rare of late.

The steelmakers are now keen for business and price cutting is affecting practically all departments. For joists £7 10s ($36.30) is commonly accepted

(*Concluded on Page* 1005)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, October 12	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable								
PIG IRON	£ s d		Francs		Francs		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$15.73	3 6 6*	$14.49	315	$14.89	325	$16.84	3 10 0
Basic	16.46	3 8 0	14.26	310	14.66	320	15.00	3 2 0
Basic-bessemer	19.36	4 0 0†	14.26	310	14.20	310	16.84	3 10 0
Hematite, Phosphorus 0.02-0.05	18.03	3 14 6	20.24	440	.....	...	21.78	4 10 0
SEMIFINISHED STEEL								
Billets	$27.83	5 15 0	$22.08	480	$21.98	480	$22.02	4 11 0
Wire rods	44.77	9 5 0	27.14	590	28.85	630	27.83	5 15 0
FINISHED STEEL								
Standard rails	$38.72	8 0 0	$24.15	525	$23.82	520	$31.46	6 10 0
Merchant bars	1.57c	7 5 0	1.14c	545	1.16c	560	1.18c	5 8 0
Structural shapes	1.46c	6 15 0	1.10c	525	1.14c	550	1.15c	5 5 0
Plates, ship, bridge and tank	1.57c	7 5 0	1.34c	642	1.38c	675	1.40c	6 8 0
Sheets, black, 24 gage	2.21c	10 5 0	2.34c	1,120	2.34c	1,125	2.63c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.51c	16 5 0	3.88c	1,855	4.68c	2,250	3.67c	16 15 0
Bands and strips	2.21c	10 5 0	1.67c	800	1.56c	750	1.37c	6 5 0
Plain wire, base	2.38c	11 0 0	1.90c	910	1.64c	800	1.59c	7 5 0
Galvanized wire, base	3.02c	14 0 0	2.40c	1,150	2.18c	1,050	2.03c	9 5 0
Wire nails, base	3.13c	14 10 0	2.09c	1,000	1.77c	850	2.19c	10 0 0
Tin plate, base box 108 pounds	$ 5.72	0 19 6	.....	...	.....	...	$ 6.53	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.34	3 7 6	$15.87	345(2)	$15.34	335	$20.01	87
Basic pig iron	16.46	3 8 0	15.87	345(1)	15.34	335	20.93	91
Furnace coke	3.03	0 12 6	6.53	142	5.73	125	5.52	24
Billets	27.83	5 15 0	20.24	440	22.44	490	27.60	120
Standard rails	1.73c	8 0 0	1.11c	530	1.09c	525	1.48c	142
Merchant bars	1.67c	7 15 0	1.20c	575	1.22c	585	1.35c	129
Shapes	1.57c	7 5 0	1.05c	500	1.15c	553	1.36c	130
Plates, ship, bridge and tank	1.62c	7 10 0	1.86c	890	1.41c	680	1.51c	145
Sheets, black, 24 gage	2.27c	10 10 0	2.53c	1,210	2.34c	1,125	2.45c	235
Sheets, galvanized 24 gage, corrugated	3.51c	16 5 0	3.61c	1,725	4.78c	2,300	3.86c	370
Plain wire	2.38c	11 0 0	1.90c	910	1.64c	800	1.98c	190
Bands and Strips	2.21c	10 5 0	1.46c	700	1.46c	700	1.59c	152

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 6d ($3.03) f. o. b. Ferromanganese £15 5s 0d ($73.81) f. o. b. German ferromanganese £15 0s 0d ($72.60) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

Norfolk & Western Railroad Issues List Calling for 80 Machines—Industrial Buying Heavy But Small Orders Predominate

BUYING of machine tools and equipment appears somewhat improved although no unusual orders have appeared. For the most part, business consists of single orders. Few large lists are pending. One of the largest lists to be sent out in several months is that of the Norfolk & Western railroad. This inquiry calls for 48 items involving 80 tools. Bids must be in by Oct. 28. No other railroad business of consequence is pending. Westinghouse Electric & Mfg. Co. has made no purchases against its recent list. Some dealers are not in a position to give immediate deliveries because manufacturers are pretty well booked up, consequently there is more of a tendency to buy from the floor. Demand for used tools remains steady.

New York, Oct. 13.—Demand for machine tools is spotty with small outstanding lists, either inquired for or placed. Brooklyn Manhattan Transit Co. is adding a few machines to its pending list for DeKalb avenue shops, and New York Central railroad is bringing out an occasional machine. This railroad recently closed on a 6-foot radial drill to the Niles-Bement-Pond Co., which builder has also booked a car wheel lathe for the Louisville & Nashville and three large horizontal and cylindrical scarfing and facing machines for the A. O. Smith Corp., Milwaukee, Mergenthaler Linotype Co., 29 Ryerson street, Brooklyn, has closed on four machines including two screw machines, engine lathe and milling machine. Recent purchases of Amtorg Trading Corp., New York, noted in part last week, have exceeded $300,000.

Pittsburgh, Oct. 13.—Receipt this week of an inquiry from the Norfolk & Western, Roanoke, Va., involving 48 items representing perhaps 80 machine tools for its new shops, interrupts the monotony of a market where practically all inquiries and sales involve single items. The usual run of shop equipment is wanted in this, the first real inquiry from railroads here in a period of months. The Westinghouse Electric & Mfg. Co. has not begun purchase against its list, mentioned last week, but has closed on a crane. One or two machine tool dealers note a growing demand for items upon their display floors.

Norfolk & Western List

The 1925 tool program of the Norfolk & Western railway, Roanoke, Va., has just been announced, the inquiry calling for the following machine tools with bids in Oct. 28:

23 grinders of various types; 18 lathes; nine drill presses; five shearing machines; three pipe threading machines; two semiautomatic thread milling machines; two single spindle automatic bar machines; two milling machines; two planers; semiautomatic chucking machine; steel pressure blower; horizontal boring, drilling and milling machine; 8-foot cornice brake; portable cylinder boring bar; portable cylinder or dome facing machine; 50-ton power forcing press; multiple punch and shearing machine; locomotive wheel quartering machine; pneumatic gap riveter; 30-inch wood cut-off saw; a 24-inch and a 32-inch shaper; portable crank pin turner.

Boston, Oct. 13.—Machine tool inquiries at this point indicate improved conditions in New England territory. Some advance is noticeable in drill and shaper prices, while sales volumes for the week show little change. General Electric Co., Lynn, Mass., has purchased two special tools. Walworth Mfg. Co., of this city, recently bought a multiple spindle drill.

Chicago, Oct. 13.—Inquiries by large industrials for special equipment constitutes the chief activity in the Central West machinery market. Nash Motors Co., Kenohsa, Wis.; Allis-Chalmers Co., Milwaukee, and A. O. Smith Corp., Milwaukee, are closing on additional special tools. A large agricultural implement interest is considering additions. New York Central railroad is in the market for two 3-foot radial drills. Chicago, Milwaukee & St. Paul railroad is inquiring for a 24-inch shaper, a 24-inch hack saw, a 3-foot radial drill, a 28-inch drill press, a 7-spindle rail drill, a 4-spindle heavy duty drill press, a 24-inch x 6-foot heavy duty lathe and a 39-inch magnet.

Cincinnati, Oct. 13.—Tool builders here continue to enjoy good business, although current orders involve single installations for the most part. Large orders are wholly lacking, but individual sales are sufficient to keep the market in an active mood. Cincinnati Planer Co. booked an order for three 36-inch planers from Textile Mfg. Co., Reading, Pa., and also sold a 6-foot boring mill to a Beaumont, Texas, manufacturer. Niles-Bement-Pond Co. booked several railroad orders for radial drills, lathes and shapers. Railroad inquiry is considerably more active. Plant operations have increased slightly.

CRANE ORDERS PLACED

22 handpower trolley hoists, including eight 3-tons, eight 4-ton and six 6-ton, for Public Service Production Co., Newark, N. J.; to Wright Mfg. Co.

Seven electric overhead cranes for a power company in New York metropolitan district, reported last week as placed, are for Exeter Power Co., Pittson, Pa.; contract placed through American Gas & Electric Co., New York, with Whiting Corp.; Sargent & Lundy, Chicago, are engineers in charge. Specifications called for two 100-ton, two 25-ton and three 15-ton cranes.

Six electric hoists, five 1-ton and one 2-ton, for Morris Park shops of Long Island railroad; placed with unnamed builder.

Six or seven cranes to be rebuilt for new Chicago plant of Valley Mould & Iron Corp., Sharpsville, Pa.; contract awarded Whiting Corp.

Three 25-ton locomotive cranes for United Fuel & Supply Co., Detroit; to McMyler Interstate Co.

Three 15-ton hoist magnet handling cranes, for Carnegie Steel Co., Homestead, Pa.; to Alliance Machine Co.

Three handpower cranes, including two 5-ton and one 3-ton, for a New York stoneyard; to New Jersey Foundry & Machine Co.

Two 25-ton locomotive cranes, for Port Commission, Colombia, South America, placed through Uhland Contracting Co., New York; to Industrial Works.

Two 25-ton locomotive cranes for Chesapeake & Ohio railroad; to McMyler Interstate Co. Two ditchers are to be purchased soon by this railroad.

Two 10-ton hoists, floor controlled, for Ray Consolidated Copper Co., New York; to Shepard Electric Crane & Hoist Co.

Among the single awards were: 5-ton, 3-motor crane for Westinghouse Electric & Mfg. Co., Cleveland, to Cleveland Crane & Engineering Works; 10-ton crawler crane for Koss Construction Co., Kansas City, Mo., to American Hoist & Derrick Co.; 10-ton electric crane for National Carbon Co., Clarksburg, W. Va., to unnamed builder; 12½-ton electric overhead crane for Watson Machine Co., Paterson, N. J., to Shaw Electric Crane Co.; 30-ton electric overhead crane, for Mexico smelter of American Smelting & Refining Co., New York., to Shaw Electric Crane Co.; 10-ton, 5-motor crane for Beckwith Iron Works, Chicago, to Whiting Corp.

CRANE ORDERS PENDING

Six electric cranes for Anaconda Copper Mining Co., New York; bids asked.

Three gantry cranes for Lackawanna railroad; action expected at once.

Two electric cranes, one 10-ton and one 5-ton, for Buffalo warehouse of General Electric Co.; bids asked.

Two ditchers, for Chesapeake & Ohio railroad; to be purchased soon.

Formal inquiry expected for several cranes for new building at Park works, Pittsburgh Crucible Steel Co., including one 10-ton crane.

Group crane inquiries expected to close soon in Pittsburgh district by Carnegie Steel Co. and other corporation units; Aluminum Co. of America, and Weirton Steel Co.

Among the single inquiries are: Latrobe Electric Steel Co., Latrobe, Pa.; Vulcan Mold & Iron Corp., Latrobe, Pa.; nearby steel company located on Ohio river, 20-ton crane, bids being taken.

Steel Works

Operators Meet in Cleveland—Discuss Open-Hearth Problems

Discussion of gas and oil-fired open-hearth furnaces comprised the program for the first day of the meeting of the American Institute of Mining and Metallurgical Engineers' at Hotel Cleveland, Tuesday, Oct. 13. President J. V. W. Reynders struck the keynote of the morning session, urging co-operation to the fullest extent in broadcasting the newest development in open-hearth design.

Kenneth McCutcheon, American Rolling Mill Co., Middletown, O., described the design of a 75-ton furnace operated by that company at Ashland, Ky. This open-hearth is fired by natural gas and by-product gas mixed and fed through automatic regulators. Mr. McCutcheon told of design changes made in order to overcome difficulties met with during operation. Increasing the roof thickness from the center of the valley and staggering back added considerable to the furnace life.

Considerable discussion arose over the height of ports. It was brought out that in dealing with gas pressures increasing the burner size at the manifold decreases the pressure required in the burner.

The afternoon session was devoted to the discussion of oil-fired and producer gas fired open-hearth furnaces. An oil burner of unique design was described in which the oil is fed through nozzles cut back at an angle of 45 degrees from the burner pipe, giving a spray into the chamber and reducing oil consumption.

R. J. Cain, Bourne-Fuller Co., Cleveland, added to the data on metal case brick by telling of his experiences therewith. Difficulties in crawling were overcome there by laying in dry and using chrome brick between thick layers of metal casing.

Chairman Kent Harrison, Donner Steel Co., Buffalo, asked co-operation in his plan to obtain blueprints of the furnaces used by various member companies and to compile these in photostat form.

New Alloy Steel Prices Are Announced

Pittsburgh, Oct. 13.—Alloy steel prices are firmer and an advances in minimum quotations effective Oct. 12 have been made on standard sizes of bars. An important change in quoting has been the establishment of uniform prices at Pittsburgh and Chicago by some makers. The present schedule of minimum prices represents an advance in most instances and a slight lowering in others. Prices considerably higher than this schedule are quoted by some makers. The new minimums are as follows:

2100 series	3.30c
2300 series	4.60c
2500 series	5.80c
3100 series	3.60c
3200 series	5.30c
3300 series	7.30c
3400 series	6.60c
4100 series, low molybdenum	3.60c
4100 series molybdenum, .24-0.40	4.45c
4515 Nickel-Molybdenum	4.60c
5100 series	3.60c
5100 5-point carbon range	3.70c
6100 series, spring	3.85c
6100 series, forging	4.40c
6100 5-point carbon range	4.50c
9200 series	3.30c

To Operate New Steel Plant at Kansas City

Cleveland, Oct. 13.—Finished steel producing capacity of the Missouri valley region will be enhanced when the new mill of the recently organized Kansas City Steel Corp. is started. The new company was formed in September by J. W. Dana, Kansas City attorney, and his associates. L. W. Conray, formerly with the Kansas City Bolt & Nut Co., will be in charge of operations.

Mr. Conroy is in Cleveland negotiating the purchase of the equipment of the defunct Cromwell Steel Co., Lorain, O. The new company has purchased through banking interests, the Cromwell company's four 90-ton open-hearth furnaces, its 30-inch, 2-high, 2-stand reversing bar mill, and 20-ton steam hammer.

Backers of the new company expect it will be able to compete successfully with the Chicago mills due to the collection of approximately 1,000,000 tons of scrap in the Kansas City district annually, most of which now finds its way to St. Louis or Chicago furnaces. The new plant will draw upon this scrap supply for its requirements and produce finished lines in greatest local demand.

Pig Iron Is Sold for First Quarter at Advance

(*Concluded from Page* 984)

1300 tons of No. 2 foundry for first quarter is reported. First quarter inquiry includes 1500 tons of malleable and foundry for Chicago delivery, while a fourth quarter inquiry for 1000 tons of No. 2 foundry is shaping up. Chicago district melters are inquiring for 150 tons of silvery and 150 tons of low phosphorus for first quarter. Some Tennessee iron is quoted at $19, Birmingham, while an Alabama interest is quoting $20, Birmingham, for first quarter. When Iroquois No. 4 stack is lighted, probably by the end of this week, eight merchant stacks will be active in this district.

Cincinnati, Oct. 13.—Recent sales of pig iron in this district did not exceed 2000 tons, but inquiries pending involve close to 25,000 tons of foundry and malleable iron. The General Motors Corp. is inquiring for 15.000 tons of northern foundry and malleable iron. The Standard Sanitary Mfg. Co., is negotiating for 1500 tons of northern foundry for its Louisville, Ky., plant. The Worthington Pump & Machinery Co., is reported to have bought 300 tons of northern iron for its Elmwood, O. plant. Prices continue firm. Northern iron is quoted $19.50 to $20 Ironton, while southern ranges from $19 to $20, Birmingham base, the former quotation applying to the product of the Tennessee furnace. The Sloss-Sheffield Steel & Iron Co., is sold up for the balance of this year.

Philadelphia, Oct. 13.—Sales of foundry iron in this territory the past week are estimated at 20,000 tons, mostly to pipemakers. A substantial tonnage involved foreign iron. Domestic iron seems firm at $21, eastern furnace, with the foreign product selling close to that figure. Basic and low phosphorus are featureless except for carload sales at unchanged prices. Eastern furnaces now operating are not soliciting business generally on account of being sold well ahead.

St. Louis, Oct. 13.—Inquiry for pig iron has decreased, but the market is strong, and users are anxious to have their tonnages shipped. Producers and selling agencies serving this district have little to offer. Sales reported for the week total less than 600 tons, and inquiries aggregate slightly under 1500 tons.

The melt at foundries specializing in automobile casting and work for makers of farm implement continues at a high rate, and most of the stove plants are busy. Machinery and engine builders are operating at full schedule. Prices are steady, with the trend upward. No. 2 southern is firm at $19 to $19.50, Birmingham, and offerings are light. Chicago iron is firm at $21.50, base. The leading firm at $21.50, base. The leading local continues its nominal quotation of $22.50 to $23, f.o.b. Granite City.

Birmingham, Ala., Oct. 12.—Alabama furnaces are selling pig iron in small lots and the aggregate is good. Quotations are advancing, now ranging from $19.50 to $21, the latter price having been obtained for a few car lots for immediate delivery. Large tonnages may be done at $19.50 for delivery in 30 days. The average price is around $20. The present output is less than the melt and shipment and stacks here have been lowered further. Two furnaces will be ready for resumption next month. It is understood that still another furnace may be started in November.

Industrial Advertising Men Will Meet

Better methods of marketing and advertising will be discussed by the National Industrial Advertisers' association at its fourth annual convention at the Chalfonte hotel, Atlantic City, Oct. 19-21. The central theme of the convention is "Cutting the high cost of selling by applying common sense methods to advertising and advertisements." Many speakers of prominence as industrial and advertising managers or executives will discuss better merchandising and advertising methods.

A feature of the convention will be the exhibit of industrial advertising, the competition having been spurred by several prize awards. Among the prizes to be given for special classes of exhibits will be the award of the Penton Publishing Co. for the best business paper advertisement.

Officers of the association are: President, Julius Holl, Link Belt Co. Chicago; vice president, Bennett Chapple, American Rolling Mill Co., Middletown, O.; secretary J. R. Hopkins, Chicago Belting Co., Chicago; treasurer C. H. Connell, Weller Mfg. Co., Chicago. Directors are: Keith J. Evans, Joseph T. Ryerson & Son, Inc., Chicago; Ezra W. Clark, Clark Tructractor Co., Buchanan, Mich.; F. R. Davis, General Electric Co., Schenectady, N. Y.; J. C. McQuiston, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; H. L. Delander, Crane Co., Chicago; W. A. Wolff, Western Electric Co., New York; L. F. Hamilton, Walworth Mfg. Co., Boston; Philip C. Gunion, recently with Hyatt Roller Bearing Co., Newark, N. J., and George F. Clime, Brown Hoisting Machinery Co., Cleveland.

New Merger To Include Southern Furnaces

Cincinnati, Oct. 13.—Merger of southern coal and industrial companies involving numerous properties and backed by capital in Chicago and several eastern cities, was announced Oct. 7 in the purchase by the Bon Air Coal & Iron Corp., Nashville, of the properties of the Tennessee Consolidated Coal Co. and the Chattanooga Gas & Coke Co. The sale of the Chattanooga Coke & Gas Co. is subject to ratification by its stockholders before Oct. 20.

Other properties which it is announced will participate in the merger are: J. J. Gray, Jr., Rockdale, Tenn., operator of blast furnaces at Rockdale and Clarksville Tenn; and the Southern Ferro Alloys Co., with plants at Chattanooga and Cleveland, Tenn. The deal for the latter company has not been consummated.

The merger was arranged by William J. Cummins, vice president and general manager of the Bon Air company. Negotiations extended over a period of 12 months. In the new corporation Mr. Cummins will be chairman of the executive committee. Associated with Mr. Cummins in the new company are William Wrigley, Jr., Chicago; Col. Jacob Ruppert, New York, and John McE. Bowman, New York. The Bon Air Coal & Iron Corp. owns three coke blast furnaces at Allens Creek and Goodrich, Tenn., and a charcoal furnace at Wrigley, Tenn.

Moves to Milwaukee

Announcement is made that the National Enameling & Stamping Co. is about to transfer its general offices from New York to Milwaukee, the seat of one of its principal production centers. A floor has been leased in the First Wisconsin National Bank building. The change follows the recent election of Alfred J. Kieckhefer, general manager of the Milwaukee works, as president of the company. His father, the late Ferdinand A. W. Kieckhefer, founded the Milwaukee works and initiated the movement which led to the formation of the present company in 1899.

Locomotive Orders Drop

Washington, Oct. 13.—Locomotive shipments dropped in September to 94, compared with 104 in August and a monthly average of 122 in 1924, according to reports to the department of commerce. Unfilled orders gained over August. Total orders for nine months of 1925 were 846 compared with 1094 for the same period of 1924. Following are further comparisons.

Year and month	—Shipment— Total	Domes.	Unfilled orders Total	Domes.
1920 monthly ave.	199	110	1,323	894
1921 monthly ave.	112	69	337	206
1922 monthly ave.	106	88	889	791
1923 monthly ave	226	249	1,592	1,511
1924 monthly ave	122	110	479	424
1923				
Total (9 months)	2,251	2,115	.....	.....
1924				
Total (9 months)	1,094	987	.....	.....
1925				
January	90	45	407	351
February	85	73	397	343
March	109	93	447	351
April	92	82	477	362
May	96	68	467	353
June	110	61	397	300
July	66	58	378	283
August	104	91	309	225
September	94	50	363	296
Total (9 months)	846	621	.....	.....

Negotiate for Mine

Syndicate Forming to Purchase Rogers, Brown's Susquehanna

Cleveland, Oct. 13.—Negotiations are under way for the purchase of the Susquehanna mine, one of the largest open pit properties on the Mesabi range, from the Rogers, Brown Iron Co., by a syndicate formed by the M. A. Hanna Co., Cleveland.

The importance of this step lies chiefly in the fact that an excess supply of iron ore has been pressing on the market for some years, and that it is another advance in the direction of centralized ownership of ore properties which it is believed is the real solution of the problem of overproduction. The Rogers, Brown company will not retain an interest in the mine, but has other mine interests in the Lake Superior district from which it will continue to draw its supplies.

The Susquehanna mine, Hibbing, Minn., was opened in 1906 by the Rogers, Brown company and has shipped approximately 8,000,000 tons. The tonnage remaining in the property is estimated in excess of 15,000,000 tons, of which a substantial proportion will be mined by open pit methods. It contains bessemer and nonbessemer ore of established standard grades.

The largest output of the mine in any year was 906,913 tons in 1914. Shipments last year totaled 494,603 tons. For some years the mine has been operated on a reduced basis, but with the change in ownership and management it is expected equipment will be modernized, and that annual shipments will be greatly increased. A reformation of the ore industry has been noted for several years, with properties of this description going to certain large interests, and curtailment or abandonment of production in other directions, in the effort by producers to stabilize further the industry.

The financial details which involve a substantial readjustment of the Rogers, Brown company's affairs are in course of negotiation. Before arrangements can be completed a consent to a release for the sale of the mine will have to be obtained from the company's general mortgage bondholders. The negotiations do not involve the company's four Susquehanna furnaces at Buffalo, as previously reported.

Some large and important ore consuming intrests will be associated with the Hanna company in the purchase of the mine.

A.F.A. Meet Wins Against Odds

Twenty-ninth Annual Convention at Syracuse Ranks High in List of Successful Meetings of Association—Technical Program Wins Enthusiastic Attention of Foundrymen—Show Proves Popular and Profitable

IN SPITE of numerous handicaps, the twenty-ninth annual convention of the American Foundrymen's association held last week in Syracuse, N. Y., was adjudged a successful event. With a population of approximately 200,000, Syracuse is probably the smallest city in which the convention has been held. The local hotels were filled to overflowing and the Syracuse chamber of commerce arranged for taking care of visitors in private homes. The fact that the fair-grounds are four or five miles from the downtown district involved certain inconveniences inasmuch as the transportation facilities were not always of the best. The last and perhaps most tantalizing handicap was the weather. The unexpected cold spell which struck the salt city Sunday and continued until Wednesday evening had a depressing effect on all visitors and was especially noticed by those attending the technical sessions in the dairy building.

That a convention and exhibition not only won out over these obstacles, but actually came through as a more than average success, is almost a miracle. And yet, analyzed in retrospect, the Syracuse meeting was notable in many ways. The total floor space of the exhibition ranged between 56,000 and 57,000 square feet making the show the largest since the exhibitions in 1919 and 1920. From reports of the exhibitors, the Syracuse event was a profitable one, the number of actual sales of equipment and supplies being surprisingly high. The attendance for the convention exceeded 3500 which is above the average for conventions held in the last five years. Visitors came from all parts of the United States and Canada and about a dozen representatives from Europe and Asia were present.

One of the outstanding features of the convention was the technical program which seemed more complete than in recent years. The program was varied and frequently as high as 200 foundrymen were in attendance at a single session. Unusual attention was manifested in the meetings devoted to foundry costs and sand research, and the sessions devoted to foundry practice also were well attended.

Before the Syracuse meeting closed, enthusiastic remarks concerning the Detroit convention of 1926 were heard. Next year marks the thirtieth anniversary of the founding of the American Foundrymen's association and this fact, coupled with the plan to make the Detroit meeting an international affair with several hundred visitors from abroad, promises to make the convention in the automobile city the greatest ever held by the association.

Foundrymen Seek Light on Furnace Practice

THAT the idea of exchanging papers between American and European foundry associations is becoming increasingly popular each year was evident by the attention devoted Tuesday morning to the address of J. E. Fletcher, past director and consultant of the British Cast Iron Research association and prominently identified with many activities in the foundry industry of Great Britain. Mr. Fletcher's paper, entitled, "Some Fundamental Relationships in Cast Iron, Wrought Iron and Steel Manufacture" is the fourth to be presented by members of the Institute of British Foundrymen. It will be published in full in IRON TRADE REVIEW, the first installment appearing in this issue.

Pig Iron Is Base

One of the main points brought out by Mr. Fletcher is that pig iron at present, the base from which cast iron, wrought iron and steel are made varies widely with blast furnace practice and may be of extremely different structure although it is identical in chemical analysis. In fact, his paper may be considered a plea for research in blast furnace practice to determine what factors affect quality.

In the extensive discussion following Mr. Fletcher's presentation, numerous speakers commended the author for the clear-cut, intelligent manner in which he focussed attention on certain important problems of foundrymen which may be traced back to the pig iron they use. Dr. Richard Moldenke, Watchung, N. J., corroborated Mr. Fletcher's assertion that the chemical analysis and physical tests do not give sufficient data on the structure of pig iron. He suggested that complete analysis might throw light on the structure of iron. He also urged more intensive work in formulating suitable standards for pig iron, and intimated a research association for studying blast furnace practice is badly needed.

Rate of Cooling Important

R. S. MacPherran, Allis-Chalmers Mfg. Co., Milwaukee, commented on the different characteristics of pig iron having identical analyses and asked if any data are available showing what causes this difference. He suggested a committee of foundrymen be appointed to study the effect of blast furnace practice on the quality of pig iron.

Dr. Moldenke drew attention to the fact the rate of setting of iron affects its structure, which statement prompted Mr. Fletcher to emphasize the importance of the viscosity of metal. He reported the British association is trying to perfect a measure of viscosity. James T. MacKenzie,

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Award Seaman and McFadden Medals at Banquet

THE annual banquet held in the ballroom of the Syracuse hotel, Thursday evening was rendered memorable by the presentation of the Joseph S. Seaman and the William H. McFadden gold medals to Dr. Richard Moldenke and Dr. R. J. Anderson, respectively. In presenting the Seaman medal, B. D. Fuller, past president of the association spoke affactionately of Daddy Seaman and remarked upon the kindliness which was taken to typify the donor in the execution of the medal itself. He outlined the services of Dr. Moldenke in recognition of which the medal was presented. In his acknowledgment of the award, Dr. Moldenke gave his patriarchal advice to the generation now coming forward in the industry.

G. H. Clamer, past president of the association and chairman of the committee on awarding the John A. Penton, J. H. Whiting, Joseph S. Seaman and William H. McFadden medals paid high compliment to the accomplishment of Robert J. Anderson in the development of nonferrous alloys, particularly aluminum. In his response, Dr. Anderson remarked on the centennial of the production of the first aluminum, which occurred in Copenhagen, Denmark, in 1825. Until 1856 this metal was still a curiosity bringing $150 a pound in contrast to the present day price of less than 30 cents. He stated that the production and use of aluminum was increasing at the rate of 100 per cent every five years, and that alloys of aluminum are approaching or excelling cuprous and other nonferrous alloys as well as the ferrous metals.

Retiring president Louis W. Olson presided and introduced the toastmaster William H. Barr, president of the National Founders' association. The latter in turn presented James A. Emery, general counsel, National Founders' association who delivered the principal address of the evening.

American Cast Iron Pipe Co., Birmingham, Ala., entered the discussion at this point to remark that knowledge of the specific heat of iron above the melting point would be exceedingly valuable in solving the puzzle of pig iron structure.

R. F. Harrington, Hunt-Spiller Corp., Boston, declared foundrymen might profitably take a leaf from the experience of army ordnance officers in the days prior to the Civil war. Old records show that an officer was detailed to each blast furnace supplying iron for gun castings, so that good practice would be assured.

E. J. Lowry, Hickman Williams Co., Chicago, referred to Mr. Fletcher's remarks on the use of scrap, stating that conditions in the United States differ radically from those in England. He said most blast furnaces using scrap consume busheling, borings or turnings and not bundled scrap. In many cases, he added, the scrap permits easier reduction of hard ores than if no scrap were used. He admitted certain scrap has a deteriorating effect in the blast furnace and declared good practice is essential both in making pig iron and in making castings, if all around results are to be satisfactory. Mr. Lowry criticized scrap specifications, declaring they are not made sufficiently specific.

Other papers at this session included "Foundry Progress: Past, Present and Future," by J. D. Towne, Dayton Steel Casting Co., Dayton, O., and "Reducing the Cost of Cleaning Ferrous Castings," by J. H. Hopp, president, Hopp-Patterson Co., Chicago. In the latter paper, presented on behalf of the Chicago Foundrymen's club, the author discusses molding practice which reduces the need of extensive cleaning and outlines cleaning room methods and management, including grinding operations. The paper induced Mr. MacPherran to describe briefly the hydraulic method of cleaning employed by the Allis-Chalmers Mfg. Co., and others. The discussion developed into a consideration of relative costs of this and other cleaning processes.

A. H. Jameson, Deemer Steel Castings Co., New Castle, Del., presided as chairman.

Apprentice Training and Costs Receive Attention

IMPORTANCE of the apprentice problem was emphasized in the resolutions offered at the business session Wednesday morning, at a luncheon for instructors of foundry practice held Wednesday noon and again at a meeting devoted to apprentice training held in the afternoon, this session having been postponed from Tuesday. Dean C. B. Connelley, Carnegie Institute of Technology, Pittsburgh, presided at the luncheon and at the afternoon session. At the latter meeting he introduced R. R. Meigs, Lynn, Mass., who spoke on "What the Foundry Offers a Technical Graduate As Viewed By a Graduate Apprentice." Mr. Meigs declared that the foundries present no organized appeal to graduates and suggested that a definite schedule of training is much needed.

Dean Connelley drew attention to the fact that more time and money is being expended on the apprentice problem today than ever before and urged tax payers to insist on their rights as citizens for a closer tie-up between educational systems of the country and industrial plants.

E. A. Johnson, Wentworth institute, Boston, outlined the method of training men for foundry work, pointing out that 50 per cent of the school time is devoted to practical work under commercial conditions.

Paul E. Ramp, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., described the apprentice system employed in his plant. In picturesque language he urged foundrymen not to let their molders spoil apprentices and on the other hand warned against "babying" apprentice boys. He declared that after a certain period of training, apprentices at Newport News turn out less scrap castings than the journeyman molders.

L. A. Hartley, National Founders association, Chicago, emphasized the importance of the human side of the apprentice problem. He declared that the three elements in industry are materials, equipment and man and added that less attention has been given to the last than to the other two. He pointed to the fact that in foundries, perhaps more than in any other branch of industry, skilled work is being done by relatively old men. This gap must be closed, he declared, by inducting young men into the industry, inasmuch as the supply of

skilled workmen from Europe has been cut off by immigration laws.

Dean Connelley referred to the excellent work being done in Milwaukee in apprenticeship training and other speakers referred to the efforts being made at Moline, Ill., and Newark, N. J. to solve the apprentice problem. Some time was devoted to a discussion of 31 questions on apprentice training which had been arranged by the committee on foundry training.

Foundrymen Study Cost

Recommendations for the further consideration and study of cost methods applicable to foundries were passed at the session on foundry costs, which was held under the auspices of the cost committee Tuesday afternoon. The attendance was the largest accorded any session of the convention.

A. E. Hageboeck, Frank Foundries Corp., Moline, Ill., chairman of the committee on costs, presided over the meeting and outlined the aims and purposes of the committee. He stated it is operating under the assumption that many failures among foundrymen are due to a lack of knowledge of the cost of producing castings, that all castings should be sold only on the basis of the cost of production, that a correct cost finding method is essential and that a uniform method highly is desirable.

"Foundry Management and Its Effect on Foundry Costs" was the subject of a talk by W. J. Barrett, Metropolitan Life Insurance Co., New York. In a talk on "Practical Foundry Cost Accounting" E. T. Runge, cost accountant, National Founders association, Cleveland, described a method which he developed to give a practical cost of castings in the foundry. He discussed the methods of distributing the cost under various items, including pig iron and coke, cupola labor and expense, molding labor, molding expense, shipping and cleaning expense, core labor, core expense.

Fixed Charges Discussed

The discussion which followed this paper centered around the distribution of certain fixed charges, for example depreciation, insurance, taxes, etc., and commonly given under the heading of overhead.

W. L. Hinds, Crouse Hinds Co., Syracuse, N. Y., told of the work that is being done by a group of ten foundries in that city, of which his firm is a member, and Arthur J. Tuscany, secretary of the Ohio State Foundrymen's association described the work on cost finding that is being done by various groups in Ohio.

Keen Interest in Molding Sand Research Continues

INTEREST in sand research drew one of the largest crowds present at any of the sessions. Papers were presented by H. W. Dietert and W. M. Myler on "Molding Sand Control in the Foundry;" by C. M. Nevin on, "Life of Molding Sand;" by A. A. Grubb on "Testing Core Sand Mixtures;" and by J. Fletcher Harper and W. J. Stevenson on "Methods of Testing Core Sand."

In the discussion which followed the reading of the first paper Mr. Dietert stated that the casting losses in the various foundries controlled by his company had been reduced materially since the sand control method which he described in some detail had been developed and installed. However, he qualified the statement to the extent that while the sand control method has not been directly responsible for the entire result it should be credited indirectly. Introduction of the method formed the basis for a tightening up in general foundry practice and in this respect may be regarded as an indication of the manner in which scientific control gradually is superseding former more or less rule of thumb methods which depended for results on the individual operator. The operators in this instance are not skilled molders and absolute confidence in the sand supplied has the psychological effect of increasing their efficiency in other directions. Casting losses have been reduced from an average of 9.5 to 4 per cent.

Facts Lacking on Sea Coal

Opinions were divided on whether constant addition of sea coal impaired the permeability of molding sand. Positive conclusions were lacking owing to the fact that up to the present no satisfactory method has been devised to determine this point by combustion test.

The author of the paper on the life of molding sand admitted the term still is indeterminate and depends for its application on local conditions. He suggested a method for testing specimens that approximates actual casting conditions. The amount of bonding material and the colloidal condition of this material which included quality and rehydrability are the important factors to be considered. As a rule permeability increases with heat treatment of the sand due to the formation of compound grains. Compression tests practically lead to the same conclusions as bar tests when used on a series of heat treated sands. Determining comparative durability by heating the sand to 600 degrees Cent. and getting the loss in strength is not a satisfactory method in its present form.

Consider Problems of Steel Foundry Practice

DESPITE the fact that it has been supplanted to a large extent by the electric and open-hearth furnaces, the converter was warmly defended as a melting unit for producing high-grade steel castings by S. R. Robinson, Industrial Works, Bay City, Mich., in a paper at the steel session Wednesday morning. It formerly was difficult to control the quality because of the sulphur content in the metal obtained by the use of the converter, said Mr. Robinson. Since the introduction of alkali compounds for eliminating sulphur, he said, the results obtained have been fully equal to those secured by the use of electric and open-hearth furnaces as melting units. Another speaker in commenting on Mr. Robinson's remarks, declared that his shop, by employing a desulphurizer, is able to turn out castings of the highest quality even though using as high as 90 to 100 per cent scrap in the converters. Mr. Robinson also spoke on the high physical qualities which can be obtained by employing correct melting and molding methods. While it was the concensus of the meeting that all steel castings should be annealed, it was felt that much loss due to cracking and warping can be eliminated if the castings show high physical characteristics as cast.

Mr. Robinson said that the cost of molten steel at his plant during April and May, 1925, was 1.75 cents per pound. This included the labor, the

cost of the metal, the losses and the upkeep of cupolas, converters and other equipment entailed in melting.

The discussion brought out decided objections to the tendency in some quarters to specify that the manganese content of steel castings should not be above 0.80 per cent.

An unusual paper was submitted by A. W. Gregg and N. R. Knox, The Bucyrus Co., Milwaukee. This showed in great detail the results of operating an electric furnace in that company's plant. During a run for maximum production over a period of five days in June, 1925, the company ran 62 heats, with a total of 381,974 pounds charged, 32,664 kilowatt-hours of current used, or 526.8 per ton. The average time per heat was 1 hour 57 minutes. The consumption of electrodes per ton was 8.5 pounds. The paper and the discussion following showed that there is some difficulty in controlling the content of manganese and silicon but that this is a matter involving the use of skill and care. R. A. Bull told of efforts which are being made to encourage uniformity in operating practice in order to obtain uniform quality of product.

Research Reports Made

R. A. Bull, Electric Steel Founders Research Group, Chicago, read a report from the committee on the heat treatment of ferrous castings. A. H. Jameson, Deemer Steel Casting Co., New Castle, Del., read a report from the committee on specifications for steel castings, dealing mainly with actions taken jointly with the American Society for Testing Materials and which assumed tangible form at the meeting of the latter body last June. Mr. Bull also read the report of the committee for investigating the effects of phosphorus and sulphur on steel. So far the investigation has concerned chiefly the effects of sulphur in rolled and forged steel and progress is expected soon in extending the investigation to castings. Mr. Bull was asked his personal opinion as to what the investigation has revealed. He said, speaking only from his own personal standpoint, and not as a spokesman for the committee, he had studied the results of the investigation, which included more than 10,000 tests, and he was satisfied that there were no deleterious effects from sulphur when the sulphur content was below .09.

Study Cupola Practice and Metallurgy of Iron

RESULTS of extensive investigations of the properties of nickel and nickel-chromium in cast iron were set forth in a 60-page paper presented by T. H. Wickenden and J. E. Vanick, International Nickel Co., at a session on metallurgy of cast iron Thursday morning. This showed the results of tests of specimens containing 0.10 to 5 per cent nickel and from 0 to 0.50 per cent chromium. The authors discussed the problems of obtaining alloys to suit particular conditions and showed results of tests on cast iron containing up to about 30 per cent nickel.

The belief was expressed that such higher alloy irons would prove valuable for special purposes. Discussion brought out several expressions that control of the carbon content is of special importance in obtaining desired results with nickel and nickel-chromium cast iron. A suggestive point brought out was that the effects of these alloys on cast iron will be of increasing interest to foundrymen generally in view of the fact that an increasing quantity of cast scrap will contain such alloys.

The old question as to why there is so much difference in strength between charcoal and coke iron was raised but without any indication that an early solution can be expected. This came in connection with a paper by James R. Eckman and Louis Jordan, bureau of standards, Washington, and W. E. Jominy, University of Michigan, Ann Arbor, Mich., on "Oxygen Content of Coke and Charcoal Cast Irons." As was recalled at the convention,' the late J. E. Johnson believed that the strength of cast iron was increased by increasing the oxygen content. The paper read by Mr. Eckman gave results contrary to those obtained by Mr. Johnson. They indicated that the weaker irons have more oxygen than the strong irons. The paper was considered mainly of suggestive value as the findings were not of a conclusive character, according to the authors.

J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham, presented a paper on the influence of phosphorus on the total carbon content of cast iron. A paper entitled "Making Miscellaneous Steel Castings for Navy Use," by D. F. Ducey, Puget Sound navy yard, was read by title.

Cupola Practice Considered

Despite the fact that Friday was the closing day of the convention, more than one hundred foundrymen and metallurgists listened to the presentation of a group of papers on gray iron foundry practice at a session held in the morning. W. J. Kihn, Worthington Pump Co., Cincinnati, Ohio, presided.

The paper by S. J. Felton, Ohio Mechanics institute, Cincinnati, on superheating iron in the cupola aroused some discussion tending to indicate that an excess of coke is advised as a cure-all under average operating conditions.

J. Grennan, University of Michigan, Ann Arbor, Mich., outlined his experiments on the effect of various tuyere ratios on the melting rate in a small cupola. His statement that small tuyeres do not have a marked influence on melting was contested by Paul R. Ramp, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., who stated that nothing affects the melting speed of a cupola as much as the tuyere area. He stated that small tuyeres give a nozzle action resulting in a chilling effect directly in front of the tuyeres. He stated that a tuyere ratio of 1 to 4 or 1 to 5 is preferred.

W. D. Berry, Metal Improvement Co., Cleveland, stated that the problem of tuyere area is not so important in small cupolas as those ranging upwards from 32-inch interior diameter. He believes the continuous tuyere to be ideal.

W. H. Raynor, Dodge Brothers Co., Detroit, reported a 20 per cent greater production using a double row of tuyeres.

Prof. H. L. Campbell, University of Michigan, Ann Arbor, Mich., outlined the work which that institution is doing to develop comparative testing methods that will show properties of core oils. George A. Drysdale, Metal Improvement Co., Cleveland, presented a paper on desulphurization of various irons.

Foundry refractories used in the production of steel, malleable iron and gray iron castings were discussed at a technical session Tuesday afternoon. Discussion was based on questions prepared by members of the committee on refractories. In its design to promote an animated and intimate discussion the plan justified the expectations of the committee. Opinions based on both theoretical and practical knowledge were submitted on every question.

Commenting on the question of

whether slow or rapid heating of a new furnace exerts a direct effect on the life of refractories used in its construction, one speaker cited an example to prove that slow heating is desirable. A furnace heated in 24 hours and then placed in production furnished only 60 heats. The same furnace afterward rebuilt and slowly heated for 48 hours yielded 250 heats and afterward with a few slight modifications consistently melted over 300 heats to a roof.

Under the malleable section it was pointed out that the character of the slag and the blast pressure were more important features than the quality of the refractories. Assuming that the best grade of brick is used, it is claimed a heavy scoring occurs where the slag carries a high iron content. A close examination of the slag and a consequent regulation of the blast pressure were recommended as the obvious remedy.

Discuss Cupola Linings

Merits of various types of lining for cupolas operating continuously and those operated in the usual manner for only two or three hours daily brought forth many interesting points. One prominent mid-west foundryman melting 160 tons a day of 9 hours claimed he finds it advantageous to replace the entire facing layer of brick every day in the melting zone. A second man from the same general district claimed that with a similar tonnage he secures satisfactory results by simply daubing the melting zone every day with a mixture of clay and sandstone. A third foundryman stated that under almost the same conditions he lines his cupola with mica schist and the wear on the face of the melting zone amounts to about 1 inch per day.

Nonferrous Founders Discuss Melting Practice

ATTENDANCE at the nonferrous sessions was highly gratifying to those whose labors had made them possible and is evidence of the interesting character of the papers presented. Three sessions were held; one devoted to practical problems of brassfounding, one to aluminum alloys and another to subjects of a technical nature. In addition on the second day, a luncheon was held, followed by a round table discussion of subjects suggested by those in attendance. In the evening many attended the annual dinner of the Institute of Metals division of the A. I. M. E. to which all interested in nonferrous subjects had been invited.

A paper describing the atomized coal system of melting brass was the first presented. The coal is ground finely enough to pass through a 200-mesh screen, then is blown into the furnace under a pressure of three ounces to the square inch, which is just sufficient to move the coal laden air into the furnace where it is burned. Exception was taken to the statement made in the paper that the atomized coal is not explosive. Also the covering of ashes over the surface of the molten metal, resulting from the combustion of the finely divided coal, was considered of doubtful value by some of those present. The size of the pots so far used, it was brought out, is number 60, and the flame used for melting is of a reducing nature. When the furnace is working, no pressure is developed against the cover, and therefore, no flame works out into the room. This makes it possible for the operator to stand in comfort only 18 inches away. This system is protected by patent.

At the session devoted to aluminum alloys it was brought out that the X-ray examination of castings to reveal internal defects might prove rather costly when a large casting is carefully surveyed as numerous X-ray photographs might have to be taken. Where only one photograph is required the cost is not large, and might be from $5 to $10. Discussing aluminum aircraft castings, an alloy said to be easy to cast and almost foolproof was given as having this composition: Aluminum 93, copper 4 and silicon 3 per cent. It is suggested as suitable for complicated castings having abrupt changes in cross section. An alloy that machines well and is valuable for castings subjected to elevated temperatures, such as aluminum alloy pistons, is "Y" alloy consisting of aluminum 92.5, copper 4, nickel 2 and magnesium 1.5 per cent. It also was stated that an addition to an aluminum alloy of 3 per cent silicon appreciably increases its resistance to corrosion, and that with an addition of 5 per cent silicon the shrinkage of aluminum alloys when cast is reduced to a point where no trouble is experienced, even with intricate castings.

Successful casting of aluminum alloys in permanent molds is dependent on a number of precautions, such as feeding of crystallization shrinkage, location and size of the gates through which the fluid metal enters the mold, venting to guard against entrapped air, and control of mold temperatures. One difficulty encountered is from the warping of the material of the mold, which cannot be eliminated, but by attention to details suggested by experience, can be deferred until from 50,000 to 75,000 castings have been obtained. To coat the molds, a lime wash bonded with silicate of soda had been used with some success, but had the disadvantage of producing rather rough castings. The production from permanent molds varies with the shape of the casting and the number of pieces required.

At the Institute of Metals session written discussions were read of the papers on the fatigue of nonferrous metals, and endurance properties of nonferrous metals, the question at issue being, "Is there, or is there not, an endurance limit in the case of such alloys?"

This question has not yet been settled, and it looks as though it might be a long time before it is. A paper of interest to practical men dealt with special nickel brasses, probably the most interesting part being the analyses of special alloys, such as Turbabium bronze therein given: Copper 48, zinc 46.45, nickel 2, aluminum 0.2, manganese 1.75, iron 1.0, tin 0.50, and phosphorus 0.10 per cent.

The subjects selected at the luncheon for the "round table discussion" were fluxes gating, duplication of alloys, temperature determinations, effects of reducing atmospheres on the metal, with special reference to some types of electric furnaces and nickel in ingot brass. As so many subjects were brought out, the discussions had to be limited. There were two sides to the flux question, for and against, and the opinion was expressed that with virgin metals, no flux was required, or desirable, but those adhering to this idea, evidently have never been required to make the alloy: Copper 88, tin 10, and lead 2 per cent to produce heavy castings to withstand pressures, or they might learn the value and necessity for fluxes in the case of virgin metals.

Malleable Session

The report of the session on malleable foundry practice appears on page 971 of this issue.

South Protests Mileage Rates

Seventy-five Producers and Fabricators of Iron and Steel and Nonferrous Metals Join with 30 Southern Railroads in Declaring Eastman Proposal Unfair and Impracticable—Action May Postpone Effective Date

WASHINGTON, Oct. 13.—More than 75 important producers and fabricators of iron and steel and nonferrous products in the South and officials of 30 southern railroads, as well as several other interests have addressed communications to Chairman Aitchison, of the interstate commerce commission, vigorously objecting to the proposals for adjustment of the freight rate structure of the South in connection with the recent Eastman report on the southern class rate situation.

The proposed rates, based on the Eastman mileage scale, were intended to bring about a readjustment on classified freight tariffs as well as commodity rates that grew from the old basing points on navigable waterways in southern territory, and the new scale was scheduled by the commission to go in effect Jan. 1. Opposition to the plan as set forth by the commission has been materializing within the last few weeks.

Both the steel producers and the railroads are asking for reconsideration of the rate scheme, and this action may delay the effective date for operation of the new rates.

The petition of the iron and steel men asks for modification of the decision to eliminate alleged unjust discriminations against southern iron and steel shippers. Filing of the petition resulted from a recent meeting of iron and steel producers, shippers and fabricators at Birmingham, Ala.

The petition charges that the maximum scale of class rates in the Eastman decision does not observe a proper relationship to the distances, the rates for the shorter hauls being relatively too high when compared with the longer hauls. It is stated also that the plan of graded rates proposed by providing as maximum the combination of local rates between northern and border points, and the differential scale "intensifies and greatly aggravates the undue discriminations between southern shippers and lays an unnecessary and unjust burden upon southern industry."

"We believe that the record in this case," says the petition "shows that the southern territory has just begun to develop its industrial resources, and it is a self-evident fact it will be beneficial to the southern territory and to the country as a whole for this development to continue. The freight rate adjustment is a factor of vital importance to the successful production and marketing of the articles which we produce, and the adjustment proposed will be injurious."

Alleged discriminations cited point to a rate of 95 cents, under the new adjustment, from Cleveland to Danville, Ky., on brass castings in less than carload lots, a distance of 359 miles; while the rate from Birmingham to Danville, a distance of 365 miles, would be $1.16. Steel tanks, in less than carload lots, shipped from Montgomery, Ala., to Raleigh, N. C., the report states, would be at a rate of $1.18 for 587 miles while from Columbus, O., to Raleigh would be $1.07 for 581 miles; and that from Montgomery to Atlanta would be 72 cents for 174 miles.

Protesting concerns include the American Steel & Wire Co., Gulf States Steel Co., Sloss-Sheffield Steel & Iron Co., American Cast Iron Pipe Co., the Atlanta Plow Co., Bessemer Foundry & Machine Co., Tennessee Coal, Iron & Railroad Co., Birmingham Rail & Locomotive Co., Clarksville Foundry & Machine Works, Chattanooga Manufacturers association, Columbian Iron Works, Interstate Foundry Co., Ingalls Iron Works Co., Kilby Car & Foundry Co., Kilby Frog & Switch Co., Knoxville Iron Co., National Cast Iron Pipe Co., Southern Foundry & Machine Co., Southern Ferro Alloys Co., Tennessee Stove Works, United States Cast Iron Pipe & Foundry Co., Vicksburg Boiler & Iron Works, Virginia Bridge & Iron Co., Knoxville Brass & Metal Works, Standard Cast Iron Pipe & Foundry Co., and others.

The communication of the railroads is signed by Lincoln Greene, assistant to the president of the Southern railroad, vice presidents in charge of traffic of other carriers, general managers and general freight agents, and by the president of the Old Dominion Steamship Co., and sets out to "give reasons that make it impossible for us voluntarily to acquiesce in the report now under consideration."

The commission is urged to re-consider the rates, and the petition charges that the new plan will create more violations of the long and short haul section of the interstate commerce act than the revision itself is intended to remove. It is declared that a strictly mileage basis for such rates is unnecessary and impracticable for long distances, if any regard be had for competition or for the effect of a rate structure upon the distribution of commerce. The carriers say they do not object to a mileage scale for certain intra-territorial southern rate areas.

The carriers ask that their own plan be adopted, including their system of groupings and differentials as a basis for adjustment between southern and other rate territories, instead of the "thoroughly impractical and theoretical suggestions" of the Eastman adjustment.

"The plan now presented by the commerce commission," the statement adds "for our acceptance is not merely a complete rejection of all that the carriers proposed but it is so totally at variance with all previous decisions of the commission as to occasion no small concern on our part touching the stability of the rate system."

The Eastman decision calls for a mileage scale graduated to a distance of 1500 miles, and requires the use of the shortest possible distance between points in computing rates, regardless of the route employed and also provides for the use of that system of differentials from points of freight interchange with official classification lines.

The board of trade of Louisville, Ky., and other organizations in Kentucky and at Cincinnati have filed a memorandum as interveners in the case, protesting that the rates would work injustice to the Ohio river crossing cities, and asks that they as interveners be given hearing if the case is reopened further.

Plants of the Machinery Co. of America, manufacturer of saw and knife conditioning machinery and tools, with general offices at Big Rapids, Mich., have been working full time the entire year and they have orders enough on their books to insure capacity operation for the balance of 1925.

British Market Finds Business Broader

(*Concluded from Page* 995)

as a delivered price, and plates can be bought at £8 14s ($41.14) even for small tonnages. In the bar trade a depressing influence is exerted by re-rollers who can easily undersell the big steelworks, with the aid of the cheap billets obtained from the Continent.

British prices are now nearer to those of the Continent than they have been for a long time, and would be effectively competitive, but for the very low exchange values, which place the foreigner in a commanding position. British billets are £6 10s ($31.46) against the Belgian price of £5 12s 6d ($27.22). Apart from the price question, foreign steel is rather out of favor for a variety of reasons. Deliveries are slow and irregular, and there are numerous complaints about inaccurate gages, while short weights are occasionally heard of. A very large business has been done in the past with No. 3 Belgian iron for nut and bolt making. An important center of export was Charleroi, but this business has been largely transferred through the strike to various works in France and Luxemburg, so far from the strike affecting prices, the selling figure has this week been reduced to £6 15s ($32.67) delivered, a price which compels many small nut and bolt makers to prefer this material. The nut and bolt trade is rather quiet, and no great quantity is being taken just now.

The Midland ironworkers this week sustain a reduction of 2½ per cent in their wages under the Midland wage board sliding scale, to operate for the next two months. Prices and wages have during the year been persistently on the down grade, and Oct. 1 a reduction was made in Staffordshire iron of 7s 6d ($1.81) in crown and common bars, following the lead of Lancashire. The Staffordshire price is now £11 7s 6d ($55.05) for medium iron. Marked bars remain unchanged at £14 10s ($70.18) with an additional £1 $4.84 for special quality. A fair demand exists for the high class material, for chain and anchor making, as well as for various engineering requirements, in which toughness and general reliability are called for. Small steel bars are easier down to a level of £8 ($38.72) delivered.

The galvanized sheet trade continues strong. Prompt deliveries are not easy to get, and the buyer wanting quick service has to pay 5s ($1.21) over the £16 5s ($78.65) basis. India has been a good buyer lately, and orders come in regularly from practically all the foreign markets. The price tendency is upward, owing to some increase in the price of spelter which, if it is maintained, will probably lead to the lifting of the basis price. The Welsh works are busy, and Scotland is getting a good share of the export business, especially for the thinner gages. The ordering of black sheets is also quite satisfactory, a variety of trades calling for good quantities of this material.

The tin plate trade shows a little improvement with fair orders from the Continent, South America and the Far East. China, however, has suspended deliveries owing to political troubles. The new pooling system although approved in principle, is hanging fire somewhat, the smaller makers more particularly, not taking kindly to the proposed basis on which orders are to be allotted. They are a little nervous also as to the projected penalty of 2s 6d ($0.60) per box for excess production, and generally, they are not quite satisfied that their interests are to be adequately protected as against those of the big concerns.

French Export Prices Below Domestic

PARIS, Oct. 6.—(*European Staff Service*)—Domestic demand for pig iron is better as the usual seasonal requirements are now coming forward. Good business is being done in exports notwithstanding the slight improvement in the franc. In the steel department exports are progressing and are expected to reach the annual rate of 2,500,000 tons.

The syndicate representing producers of laminated products founded in March has run its course but has been temporarily renewed with the object of devising a permanent scheme. Among other exports 260 tons of French rails have lately been sold for Madagascar.

The sheet market is not decided though it is hoped orders will develop. There is every prospect of large business in plates for shipbuilding. The galvanized wire market continues active but the automobile industry has become quiet and a number of manufacturers of parts have had to close their works. The building industry continues active. Deliveries of reparations coke are satisfactory.

Foundry pig iron 2.50 to 9 per cent silicon is quoted at 315 francs ($15) f.o.b. Antwerp for export, the domestic price being 343 francs ($16.40)

Basic bessemer ordinary is quoted 305 francs ($14.50) per metric ton, f.o.b. Antwerp for export, the domestic price being 330 francs ($15.60).

Basic bessemer blooms are quoted £4 7s ($22), f.o.b. Antwerp for export. Other prices are: Billets £4 10s ($21.60) f.o.b. Antwerp; sheet bars £4 14s ($22.60) f.o.b. Antwerp, merchant bars £5 6s ($25.60) for export and about 585 francs ($27.60 in the domestic market; beams £5 1s ($24.4) to £5 3s ($25) f.o.b. Antwerp; rods are £5 15s ($27.80); wire rods £5 15s (27.8); hoops and bands about 800 francs ($40) for export; galvanized wire about 1150 francs ($54.30) f.o.b. Antwerp; bright wire about 800 francs ($38) f.o.b. Antwerp.

French plates are offered for export at £6 3s 6d ($29.80) f.o.b. Antwerp. The price of Belgian plates is slightly higher. Fine gages are about 1000 francs ($47. Sheets are quoted 750 francs ($35.8) for export. There is still a wide margin between domestic and export prices for this material.

French Iron and Steel Output Sets Record

Paris, Oct. 5.—(*European Special Service.*)—The output of pig iron in France in July was 724,164 metric tons against 703,264 tons in May, the highest previous point.

The number of blast furnaces in operation Aug. 1 was 144. There were 33 stacks in working order and 43 under repair or construction. The July output included 534,699 tons of basic bessemer pig iron, 133,371 tons of foundry pig iron, 36,468 tons of gray forge pig iron, 15,899 tons of special grade and 3727 tons of bessemer pig iron.

The July production of steel ingots and casting was 625,344 metric tons compared with 599,857 tons in June and 606,146 tons in January, the highest previous point. The July output included 12,084 tons of castings. Of the total tonnage 452,504 tons were basic bessemer steel, 159,398 tons were open hearth steel, 5721 tons were electric steel and 877 tons were crucible steel. The following table shows production figures in metric tons since the beginning of the year:

	Pig Iron	Steel Ingots and Castings
1913	533,900	390,580
1922	455,715	377,875
1923	452,650	425,795
1924	637,660	575,540
1925		
Jan.	669,352	608,146
Feb.	636,934	569,007
March	688,871	607,076
April	686,120	586,977
May	706,264	596,309
June	703,439	599,857
July	724,164	625,344

German Exports Gain

Berlin, Oct. 5.—(*European Staff Service*)—Germany's exports of iron and steel products for July showed a slight increase of 25,615 tons compared with the exports of the preceding month. Exports in July were 264,433 metric tons against 238,818 tons in June, 277,901 tons in May, 304,492 tons in January, and 116,529 metric tons in July 1924. Among the principal items were 44,956 tons of rails and track fastenings, 42,297 tons of bars and bands, 33,174 tons of plates and sheets and 22,880 tons of rolled and drawn wire.

German imports in July were 132,692 metric tons compared with 143,068 tons in June, 134,285 tons in May, 260,525 tons in January, and 104,098 tons in July 1924. Among the principal items were 45,677 tons of bars and bands, 34,292 tons of scrap and 17,182 tons of pig iron.

Industrial Men in the Day's News

H. G. Dalton, Appointed by President Coolidge To Study Shipping Problems

TRULY American has been his rapid rise from humble beginning to national recognition and prominence.

AN AUTHORITY on Great Lakes shipping, he has been called by President Coolidge to national service.

HIS forceful character and keen facility for solving industrial problems will be devoted to America's Merchant Marine tangle.

AMERICAN industry as the training school for the development of personal capacity for big things never was indicated more clearly than in the case of Henry G. Dalton, member of Pickands, Mather & Co., Cleveland, just appointed by President Coolidge as his personal representative in the solution of problems confronting the merchant marine of the United States. Rising rapidly from humble beginning to a position of prominence and authority bespeaks Mr. Dalton's industry, force and keen business insight. Mr. Dalton has impressed greatly his business contemporaries by his extraordinary powers of analysis and his judicial temperment.

His familiarity with the problems of Great Lakes shipping, on which subject he is an authority, has made him well qualified to assume the greater responsibilities of unraveling the tangled knarl in which the United States shipping board and Emergency Fleet Corp. have involved the American merchant marine. Practical knowledge of maritime administrative difficulties has been gained from his connection with lake marine affairs for over 40 years and his affiliation wth Pickands, Mather & Co., operators of the second largest fleet on the Great Lakes. His entrance into the present shipping difficulty offers him an opportunity to contribute materially to the commercial prosperity of the United States. Mr. Dalton is undertaking his first public service of any magnitude, other than his membership on the steel committee, working in connection with the War Industries board at Washington during the war.

Although denied the opportunity to take advantage of higher education himself, Mr. Dalton is interested keenly in educational progress. In June, 1924, he donated to Kenyon college, Gambier, O., $400,000 to construct the Samuel Mather Science hall.

The rise of Mr. Dalton in the iron and steel industry from a boy on the ore docks to supervision of all activities of one of the largest iron ore, mining, shipping, pig iron and coal interests in the industry has been remarkably rapid.

Mr. Dalton was born in Cleveland, Oct. 2, 1862. At the age of 16 he entered his first business experience at the Erie Ore Docks, Cleveland. The efficiency and energy displayed as a young man in his work on the ore docks attracted attention of his superiors and in 1883 he was taken into the central office of Pickands, Mather & Co., with which he has been connected since.

In addition to his direction of Pickands, Mather & Co., Mr. Dalton is president of the Interlake Steamship Co., vice president of the Youngstown Sheet & Tube Co. and a director of the Steel Co. of Canada. He is a member of the American Iron and Steel institute.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

HERBERT HOOVER will be presented with honorary membership by the American Society of Mechanical Engineers at its annual meeting, Nov. 30 to Dec. 4, in New York.

Worcester R. Warner, past president of the society also will be made an honorary member at that time.

* * *

Robert Odell, for several years with Republic Iron & Steel Co. at Birmingham, Ala., has resigned to join a real estate and insurance company.

* * *

Frank E. McKee has resigned as vice president and general manager of the Campbell Wyant & Cannon Foundry Co., Muskegon, Mich.

* * *

E. J. Kulas, president of Otis Steel Co., Cleveland, left Oct. 9 for Paris, France, where he will sojourn for an indefinite time.

* * *

M. Fuhrer, 447 Greenwich street, New York, has been appointed New York representative of the Lake Erie Bolt & Nut Co., Cleveland.

* * *

M. G. Thomas has been advanced to the managership of the City Foundry Co., Cleveland, to succeed W. F. Swift who died recently.

* * *

W. Leonard Thompson, former aide to Secretary of Commerce Hoover, has been made head of the statistical division of the sales department of the Delco-Light Co., Dayton, O.

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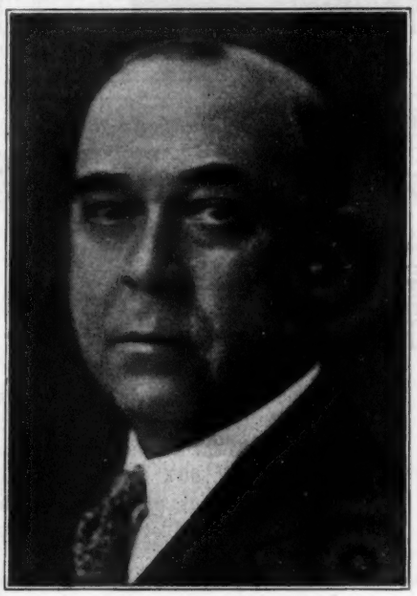
George R. Doughty, for 15 years assistant sales manager of the Republic Iron & Steel Co., Cleveland, has been appointed manager of sales of the Mill & Mine Supply Co., Akron, O., effective Oct. 1.

* * *

R. A. McHenry has been appointed purchasing agent of the Gould Coupler Co., Depew, N. Y. Mr. McHenry had been assistant purchasing agent of the Symington Co., Rochester, N. Y.

* * *

Herbert Nelson recently became associated with the Federal Abrasives Co., Birmingham, Ala., in the capacity of grading expert. Formerly Mr. Nelson was connected with the Rhodolite Co., Le Roy, N. Y., producer of abrasive garnet, and with the American Glue Co., Boston, manufacturer of abrasive paper and cloth. The Federal Abrasives Co., is a manufacturer of artificial alumina abrasives, being allied with the Southern Manganese Corp. and the Federal Phosphorus Co., and the Federal Carbon Co. Neal Neville is sales manager, and H. E. White is general superintendent of the Federal Abrasives Co.



CHARLES B. SCOTT
Recently elected head of the National Safety Council as announced in IRON TRADE REVIEW, Oct. 18.

* * *

Malcolm Blue has resigned as superintendent of the Pictou County works of the British Empire Steel Corp. He will be succeeded by Daniel MacLean, formerly assistant general superintendent.

* * *

Frank C. Carter, for many years with the Alan Wood Iron & Steel Co., has become connected with the Central Iron & Steel Co., Harrisburg, Pa., in its sales department, specializing on floor plates.

* * *

Frank J. Trippensee has resigned as president and general manager of the Trippensee Closed Body Corp., Detroit. He has been head of the company since its organization in 1904. Controlling interest in the company has been acquired by the Rickenbacker Motor Car Co. Mr. Trippensee will continue as a director of the company. He has organized also the Trippensee Sales & Mfg. Co., Detroit, for the production of woodwork for automobiles, trucks and motor busses.

* * *

Charles MacVeagh, formerly assistant general counsel of the United States Steel Corp. has been appointed ambassador to Japan. Mr. MacVeagh is a member of the American Iron and Steel institute.

* * *

Dr. William F. M. Goss former president of the American Society of Mechanical Engineers and of the Railway Car Manufacturers' association, has retired from business and has moved to Barnstable, Mass.

* * *

R. A. McClelland has resigned as hot mill superintendent of the Newport Rolling Mill Co., Newport, Ky., to become assistant general superintendent of the Central Steel Co., Massillon, O.

* * *

George H. Cameron has been appointed sales representative by the William Leard Co., Inc., New Brighton, Pa., manufacturer of connecting rods and crankshafts, with his headquarters at room 88, 683 Atlantic avenue, Boston.

* * *

Richard B. Mellon, Pittsburgh, has been elected a director of Westinghouse Electric & Mfg. Co., to fill the vacancy caused by death of William McConway.

Edward D. Kilburn and Walter S. Rugg were elected vice presidents.

* * *

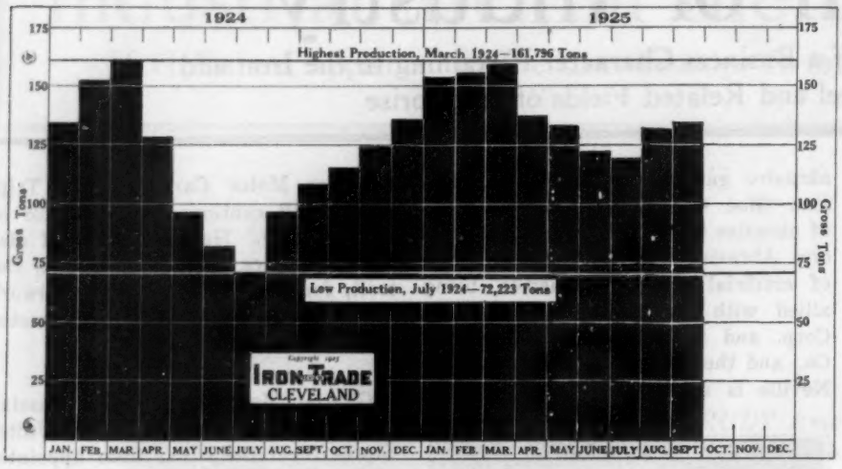
A. A. Siereveld, for many years connected with the Newport Rolling Mill Co., Newport, Ky., as employment manager has resigned to become safety engineer with the Procter & Gamble Co., Cincinnati. Ray Nattenheimer has succeeded Mr. Siereveld.

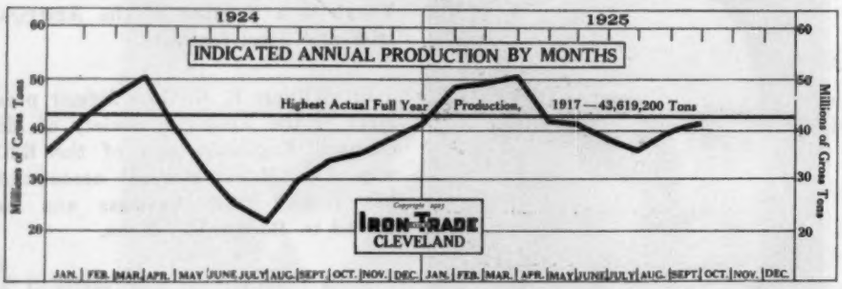
* * *

D. E. A. Charlton has been appointed manager of mining sales for the Goheen Corp. of New Jersey, Newark, N. J., paint manufacturer. After several years of practical min-

(*Concluded on Page* 1010)

Steel Ingot Increase Small


1924
1925
Highest Production, March 1924—161,796 Tons
Low Production, July 1924—72,223 Tons
Gross Tons
IRON TRADE
CLEVELAND
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.


1924
1925
INDICATED ANNUAL PRODUCTION BY MONTHS
Highest Actual Full Year Production, 1917—43,619,200 Tons
Millions of Gross Tons
IRON TRADE
CLEVELAND
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

PRODUCTION of steel ingots in September showed further increase and was the second consecutive month to record improvement. However, the rate of gain was considerably smaller than that of August. Output now is the best since last April which was the first month to show decline. Total production in September was 3,492,904 gross tons, according to statistics compiled by the American Iron and Steel institute from figures supplied by companies which in 1924 made 94.43 per cent of the country's total. The increase was 68,870 tons, or 2 per cent over the 3,424,034 tons made in August. Both August and September were months of 26 working days.

On an average daily basis, the September production represented 134,342 tons per day, which compared with the 131,694-ton daily rate of the preceding month was an increase of 2648 tons, or 2 per cent. The September rate represented 83.2 per cent of the country's peak production of 161,796 tons per day of March, 1924.

With 311 as the number of working days in the year and the production of 134,342 tons per day in September, the annual indicated production was 41,780,000 tons. The indicated annual rate for August was 40,950,000 tons and for July, 36,930,000 tons. The country's highest actual production for a full year was in 1917 when 43,619,200 tons of ingots was made.

Reporting companies in September made 3,298,349 gross tons, against 3,233,315 tons in August. Comparisons of steel ingot production by months for 1924 and 1925, as compiled by the American Iron and Steel institute, are given in the accompanying table:

Steel Ingot Production, 1924-25

94.43 Per Cent of Industry Reporting

Gross Tons

1924	Open hearth	Bessemer	All other	Monthly production companies reporting	Calculated monthly production all companies	No. of working days	Approximate daily production all companies gross tons	Change in daily production per cent
Jan.	2,766,534	667,032	12,577	3,446,143	3,649,913	27	135,182	+18.0
Feb.	2,902,641	695,905	14,085	3,612,631	3,826,246	25	153,050	+13.2
Mar.	3,249,783	706,801	15,260	3,971,844	4,206,699	26	161,796	+ 5.7
Apr.	2,575,788	573,381	12,356	3,161,525	3,348,466	26	128,787	—20.4
May	2,060,896	425,099	6,648	2,492,643	2,640,034	27	97,779	—24.1
June	1,637,660	310,070	2,622	1,950,352	2,065,676	25	82,627	—15.5
July	1,525,912	241,880	5,162	1,772,954	1,877,789	26	72,223	—12.6
Aug.	2,042,820	361,781	5,764'	2,410,365	2,552,891	26	98,188	+36.0
Sept.	2,252,976	409,922	6,864'	2,669,762	2,827,625	25	108,755	+10.7
Total 9 mos.	21,015,010	4,391,871	81,338	25,488,219	26,995,339	234	115,365	.....
Oct.	2,505,403	438,468	7,058	2,950,929	3,125,418	27	115,756	+ 6.4
Nov.	2,479,147	459,349	8,403	2,946,899	3,121,149	25	124,846	+ 7.8
Dec.	2,811,771	546,506	11,707	3,369,984	3,569,251	26	137,279	+ 9.9
Total	28,811,331	5,836,194	108,506	34,756,031	36,811,157	312	117,984	.....
1925								
Jan.	3,262,748	689,996	11,960	3,964,704	4,198,564	27	155,502	+13.3
Feb.	2,931,964	602,042	13,014	3,547,020	3,756,243	24	156,510	+ 0.6
Mar.	3,336,169	614,860	13,633	3,964,662	4,198,520	26	161,482	+ 3.1
Apr.	2,857,802	515,715	14,182	3,387,699	3,587,524	26	137,982	—14.5
May	2,754,130	497,708	13,790	3,265,628	3,458,253	26	133,010	— 3.6
June	2,538,988	476,945	12,490	3,028,423	3,207,056	26	123,348	— 7.2
July	2,444,969	457,095	13,547	2,915,611	3,087,590	26	118,753	— 3.7
Aug.	2,696,667	523,734	12,914	3,233,315	3,424,034	26	131,694	+10.9
Sept.	2,737,251	547,121	13,977	3,298,349	3,492,904	26	134,342	+ 2.0
Total 9 mos.	25,560,688	4,925,216	119,507	30,605,411	32,410,688	233	139,102	.....

To Take Over Plant

Pittsburgh, Oct. 13.—Plants of the Kelly & Jones Co. in Etna and Greenburg, Pa., and other assets at 135 Water street, will not be turned over to the Walworth Mfg. Co., Boston, probably until the latter part of this month, in conformity with a sale agreement between the boards of directors of these two companies, it was declared by James Balph, attorney for the Kelly & Jones Co. A special stockholders' meeting of the Kelly & Jones company has been called for Nov. 6 in the offices of the company here, when the sale will be ratified.

The Walworth Mfg. Co. recently underwent some new financing to care for its merger plans. In addition to the purchase of Kelly & Jones, the company has secured 74 per cent of the stock of the Mark-Lally Co.

Increasing Oven Capacity

St. Louis, Oct. 13.—The Laclede Gas Light Co. of St. Louis announces that 22 miles of new mains were constructed during the summer. Five gas-producing machines are being constructed which will increase the capacity of its by-product ovens from 6,000,000 to 11,000,000 cubic feet of gas daily. The machines will be in operation by the end of the year.

News of Societies

OVER 45 papers will be presented at the forty-sixth annual meeting of the American Society of Mechanical Engineers, to be held in the Engineering Societies' building, New York, Nov. 30-Dec. 4.

One of the feature events of the occasion will be the presentation of honorary membership in the society to Secretary of Commerce Herbert Hoover and to past president Worcester R. Warner, Cleveland. This is scheduled to take place Tuesday evening, Dec. 1, just preceding the presidential address by Dr. William F. Durand.

The first of the Henry R. Towne and Robert H. Thurston lectures will be given at this meeting. The Towne lecture will cover the relation of engineering and economics and will be given Tuesday afternoon. On Thursday afternoon the Thurston lecture on engineering and science will be given. The lecturers will be announced later.

A number of interesting sessions are planned in addition to the business meeting the afternoon of Wednesday, Dec. 2, at which time reports will be presented on the study of mechanical engineering education, and from each of the professional divisions. The national program of industrial preparedness will be discussed at the national defense session Thursday evening. Renewal of activity in the field of machine shop and machine design is reflected in five sessions on the topics of belt transmission, optical measurement, gears, machine tool design, spring design, lubrication, torsional stress in shafts, vibration in steam turbine buckets, and vibrations in shafts.

In co-operation with the Taylor society, two sessions are listed for management discussions on industrial psychology, plant design and fatigue. Materials handling from the point of view of safety will be discussed in one session, while another will deal with industrial training and apprenticeship abroad. Fuel and power will be covered from several angles. One session will be devoted to industrial furnaces. Power plant materials will include a session on steel castings, bolt materials, boiler tube corrosion and refractories. Progress reports on steam investigation and a public hearing on the power test codes will also be held.

Entertainment activities will include an informal get-together on Monday evening. The annual dinner of the society is planned for Wednesday evening.

* * *

Furnace Men Plan Meeting

The fall meeting of the American Refractories institute will be held at the Waldorf-Astoria hotel, New York, on Oct. 29. A number of technical papers have been arranged. Of special interest to refractory consumers will be an outline of a plan for refractories specifications. This has been prepared by the research division of the refractories fellowship at Mellon institute, co-operating with technical advisory committees in the study of existing test data on furnace conditions.

* * *

A. S. T. M. Committees To Meet

Fourteen committees of the American Society for Testing Materials and certain joint committees will hold a three-day session at the Hotel Cleveland, Cleveland, Oct. 27-29. Among the more important committees which will convene are the following: Sub-committees of A-1 on steel, A-2 on wrought iron, A-4 on heat treatment of iron and steel, A-5 on corrosion of iron and steel, A-7 on malleable castings, C-8 on refractories, D-5 on coal and coke, research committee on effect of tin on tool steel and joint research committee on effect of temperature on the properties of metals.

* * *

Mining Congress to Convene

American mine operators will gather in Washington, Dec. 9-11, for the twenty-eighth annual convention of the American Mining congress. This is the first time the congress has convened in the national capital, and the program will be featured by addresses from leaders in mining circles, governmental officials and national figures in mining legislation problems. Forecasts of the topics indicate that taxation, standardization of mining machinery, equipment and practice, and stabilization of the industry will be foremost in convention deliberations. The annual election will also take place at this time.

* * *

Implement Makers To Meet

A preliminary program for the thirty-second annual convention of the National Association of Farm Equipment Manufacturers, to be held Oct. 28-30 at the Congress hotel, Chicago, has been announced. The president's address will open the meeting on Wednesday, Oct. 28. In the afternoon an address will be made by W. E. Humphrey, member of federal trade commission, Washington, and will be followed by a paper on "Developments in the Transportation Situation as They Affect the Shipper," by Joseph H. Beek, national industrial traffic league, Chicago.

Several papers on research work are arranged for Thursday afternoon. Among these will be "Accomplishments and Future Developments of the Research Department," by F. W. Heiskell, chairman, advisory council to research department, and "How the Research Department Can Function for Our Trade Departments and Various Lines in the Industry," by B. B. Bell, Hunt-Helm-Ferris & Co. The annual dinner of the association will be served Thursday evening.

Convention Calendar

Oct. 12-16—American Gas association. Annual convention and exposition at Atlantic City, N. J. Alexander Forward is secretary-manager.

Oct. 19-23—National Hardware association. Thirty-first annual convention at Atlantic City, N. J. T. James Fernley, Philadelphia, is secretary-treasurer.

Oct. 21-23—American Welding Society. Fall meeting and exhibition at Massachusetts Institute of Technology, Boston. M. M. Kelly, 33 West Thirty-ninth street, New York, is secretary.

Oct. 23—American Iron and Steel institute. Fall meeting at Commodore hotel. E. A. S. Clark, 40 Rector street, New York, is secretary.

Oct. 28-30—National Association of Farm Equipment Manufacturers. Annual convention at Congress hotel, Chicago. H. J. Sameit, 608 South Dearborn street, Chicago, is secretary.

Oct. 29—American Refractories institute. Fall meeting at the Waldorf-Astoria hotel, New York. M. C. Booze, 2202 Oliver building, Pittsburgh, is acting secretary.

Nov. 11-14—American Institute of Steel Construction. Annual convention at Hotel Greenbrier, White Sulphur Springs, W. Va., Charles F. Abbott is executive director.

Nov. 30-Dec. 4—American Society of Mechanical Engineers. Annual meeting in Engineering Societies' building, New York. Calvin W. Rice, 29 W. 39th street, New York, is secretary.

Dec. 9-11—American Mining congress. Twenty-eighth annual convention in Washington. J. F. Callbreath, 84 Munsey building, Washington, is secretary.

Men of Industry

(*Concluded from Page* 1007)

ing experience, Mr. Charlton joined the *Engineering and Mining Journal-Press*, which he leaves to take up his new position.

* * *

W. D. Sayle, president of the Cleveland Punch & Shear Works, Cleveland, has returned from a trip to Europe.

* * *

R. E. Bock has been appointed district manager at Chicago of the Ohio Electric & Controller Co., Cleveland, manufacturer of lifting magnets and small motors.

* * *

G. H. Blaker, formerly sales representative in the East, has been made sales manager of the Anderson Engine & Foundry Co., Anderson, Ind. He succeeds R. E. Gray, transferred to Florida. L. W. McNamara goes to New York to succeed Mr. Blaker.

* * *

W. Scott Thomas, for 23 years connected with the sales department of J. W. Paxton Co., Philadelphia, and for the past 14 years manager of the New England branch of that company, has resigned to enter business for himself as a manufacturer's agent with headquarters in Providence, R. I.

* * *

W. F. Robertson, president of Robertson Steel & Iron Co., Cincinnati, acquired the plant of the old Elwood-Myers Co., Springfield, O., from a committee of bankers who purchased it at a public auction recently. The Robertson company has been occupying the plant for more than a year, operating a sign and tinware department.

* * *

H. B. Green who recently resigned as resident agent for the Bethlehem Steel Co. in San Francisco and who was connected with that company and the Pennsylvania Steel Co. for 24 years, has opened offices in the Monadnock building as a manufacturer's representative. He has been appointed Pacific Coast representative for the Graham Bolt & Nut Co., Pittsburgh.

* * *

Thomas H. Rogers has resigned, effective Oct. 1, as general superintendent of the Follansbee Bros. Co., Follansbee, W. Va. He has made no statement regarding his future plans and the appointment of his successor has not been announced as yet.

Mr. Rogers is one of the oldest operating executives in the Follansbee section. His first experience began at Leechburg, Pa., with Rogers & Burchfield. Later he went with the Bay State Iron Co. at Boston. In 1885 he became associated with the Wallace-Banfield Co., at Irondale, O., and remained there until the plant was dismantled in 1900. Immediately he became manager of the American Rolling Mill Co. at Middletown, O., and served in that capacity until 1904 when he located in Follansbee.

At that time the present plant of the Follansbee company was in course of construction. Mr. Rogers supervised the construction of the plant and since then has been in the capacity of general superintendent, having been associated for that period with William Banfield, who resigned a year ago. Mr. Rogers now completes 21 years of service for the Follansbee Bros. Co.

Large Uses of Steel—Flexible Shaft

(*Concluded from Page* 972)

indrical steel wire brushes fitting the bore of the tubes driven by flexible shafts ½ inch in diameter and 21 feet long were used with complete satisfaction in dry cleaning the modified Yarrow boilers of which there are 46 on the ship. The power was supplied by a ½-horsepower motor to which the flexible shaft was directly attached. Subsequently, the cleaning equipment was improved and put into regular use on the LEVIATHAN and since then on a number of other ships.

Obituaries

JOHN J. MONAGHAN, international authority on sawmill design and equipment, and vice president of the Filer & Stowell Co., Milwaukee, died at the age of 54 at San Francisco on Oct. 6 while on a business trip. He was a native of Wisconsin and following his graduation from the engineering college of the University of Wisconsin became associated with Filer & Stowell Co. James L. Monaghan, president of the Filer & Stowell Co. is an elder brother.

* * *

D. H. Peck, treasurer and manager of the Peck Spring Co., Plainville, Conn., died recently in Saybrook, Conn.

* * *

Walter L. Meek, connected with the Carborundum Co., Niagara Falls, N. Y., for many years, is dead in New York. He was born in 1867.

* * *

John Gerrick, president and manager of Gerrick & Gerrick Co., Seattle, steel contractor, died at his home there Sept. 29. Mr. Gerrick erected many steel structures in his territory including several of the largest steel bridges and also the structural frame of the Olympic hotel, Seattle.

* * *

W. R. Fortney, who was killed Sept. 28, as announced in IRON TRADE REVIEW, Oct. 8,was Chicago representative of the Landis Tool Co., Waynesboro, Pa., manufacturer of grinding machinery. He was 33 years old and had been with the Landis company since 1918.

* * *

Marion C. Rinehart, aged 81, organizer of the Pittsburgh White Metal Co., Pittsburgh, died Oct. 9 in his home in that city. Mr. Rinehart was born in Philadelphia in 1844 and was a veteran of the Civil war, serving in the Army of the Potomac. About 1885 he came to Pittsburgh and organized the white metal company. At the time of his death, Mr. Rinehart also was president and director of the American Lead Co.

* * *

N. Grattan Beale, aged 78, secretary and treasurer of James McNeil & Bros., Pittsburgh, plate fabricators, died Oct. 6 in his home in Wilkinsburg, Pa., after a brief illness. Mr. Beale was born in Pittsburgh of pioneer stock. His maternal grandfather, James Cochran, was one of the early iron manufacturers of the district; his father was the son of George Beale, whose family settled here in 1789. He received his early education in the old Lawrenceville academy and later attended St. Vincent's college, Beatty, Pa. Mr. Beale was vice president and director of the Arsenal bank.

Warehouse Buying Continues Gain

Demand Above Seasonal Rate — Prices Firm and Unchanged

BUYING from iron and steel warehouses continues above seasonal expectations in many districts. October business to date is above that of September in several cities. Prices generally are unchanged and firm.

Steadiness dominates demand in the New York jobbing district. Shapes and reinforcing bars continue among the more active items. Prices are unchanged, with sheets still a weak spot.

Demand for materials from Buffalo warehouses is as good as at any time since May. Mill schedules are not as open as they were and small lot buyers are finding it more difficult to get prompt shipments.

Flow of business to Pittsburgh jobbers is almost uninterrupted. October is witnessing heavier sales than September. Prices are unchanged and firm.

Demand continues to increase in Cleveland, one large jobber reporting October business 25 per cent higher than that in September to the same date. Prices show no change, occasional shading still being found where good customers are buying or attractive tonnages are wanted.

Movement of materials from Cincinnati warehouses continues on a large scale and beyond the expectations of many jobbers. Orders are small but numerous and make a good aggregate. Demand centers chiefly on bars, especially for road purposes.

Distribution of stock from St. Louis warehouses continues in excellent volume, leading interests reporting slightly more than the usual seasonal increase in shipments of certain materials. September sales of two leading distributors averaged 17.4 per cent larger than for the same month in 1924.

Warehouse business in iron and steel at Chicago is being maintained on substantially the same basis as August and September, with prices generally unchanged. The warehouses have not yet felt any backing up of business due to deferred mill delivery.

Detroit warehouse products have been in steady demand for many weeks. Consumers are buying slightly more than during September and the market is stronger.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.15c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	2.85c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago	2.60c
Cincinnati	3.30c
Cleveland	2.85c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.10c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Pittsburgh	3.00c
Portland	2.85c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Philadelphia, 3/16-inch	3.00c to 3.40c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.00c
Detroit	3.65c
Los Angeles	3.70c
New York	3.89c
Philadelphia	3.35c
Portland	4.25c
San Francisco	3.70c
Seattle	4.25c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	4.95c
Buffalo	4.40c
Chicago	4.00c
Cincinnati	4.55c
Cleveland	3.80c
Detroit	4.25c
Los Angeles	4.65c
New York	3.90c to 4.35c
Philadelphia	4.35c
Portland	5.25c
San Francisco	4.65c
Seattle	5.25c
St. Louis	4.50c
St. Paul	4.25c

NO. 28 GALVANIZED SHEETS

Boston	6.00c
Buffalo	5.45c
Chicago	5.00c
Cincinnati	5.85c
Cleveland	4.95c
Detroit	5.25c
Los Angeles (corr. 26 ga.)	5.75c
New York	4.90c to 5.35c
Philadelphia	5.45c
Portland	5.75c
San Francisco	5.75c
Seattle	6.25c
St. Louis	5.50c
St. Paul	5.25c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.95c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	3.95c	4.45c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.80c	4.30c
Detroit	3.75c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	3.90c	4.40c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	3.75c*	.....
Seattle	4.75c*	.....
St. Paul	4.05c*	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.15c
Buffalo	6.65c
Chicago	7.15c
Cincinnati	7.15c
Cleveland, over 500 pound lots	5.95c
Detroit	6.05c
New York	6.10c
Philadelphia	6.10c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL
New York, duty paid

Swedish hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE
Discounts from warehouse, New York City
Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6 inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
⅛ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 9
3 to 6-inch lap	—11	+ 6
7 to 12-inch lap	— 8	+16

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

PLANS for one of the largest warehouses and freight terminals in the country are involved in the bid of Root-Carter Co., 25 Broad street, New York, for the Hog Island shipyards near Philadelphia. The firm bid $3,500,000 for the Hog Island plant and although details have not been announced, it is known that the firm's plans call for the expenditure of many millions of dollars in converting the giant shipbuilding base into a warehouse and freight terminal.

* * *

FEENAUGHTY MACHINERY CO., Portland, Ore., has sold its warehouse at 324 Belmont street to the A. H. Averill Machinery Co., which will continue the agency for the Russell & Co. line of machinery formerly held by the Feenaughty company.

* * *

THREE subsidiaries of the Todd Shipbuilding Corp., the Todd Yacht Basin Co., Clinton Dry Docks, Inc., and the plant of the Todd Oil Burner & Engineering Corp., have been consolidated under the title of the Todd Dry Dock, Engineering & Repair Corp. J. Herbert Todd, former president of the Clinton Dry Docks, Inc., is president of the new consolidation.

* * *

ORGANIZATION of the Weir Kilby Corp., Birmingham, Ala., formed by the consolidation of the Weir Frog Co., Cincinnati, O., and the Kilby Frog & Switch Co., Birmingham, Ala., has been completed. O. DeG. Vanderbilt Jr. has been elected president, E. M. Kilby first vice president and J. K. Lansdowne vice president. Sales offices are continued at Cincinnati and Birmingham.

* * *

NEGOTIATIONS are under way, it is announced by Isaac Marks, secretary of the newly incorporated Midwest Engine Industrial Co., Indianapolis, to have one of two or three eastern foundries moved to Indianapolis to occupy the large foundry of the Midwest Engine Co. plant, recently acquired by the new corporation at a receiver's sale. In the organization of the Midwest Engine Industrial Co. with a capital stock of $100,000, Samuel Falender was elected president; A. M. Kahn, vice president; Isaac Marks secretary; Joseph Cohen, treasurer; and Louis J. Borinstein, assistant treasurer.

* * *

JOSEPH GERRICK and associates, San Francisco, has incorporated as Jos. Gerrick & Co. and will engage in the business of erecting all forms of structural steel and plate work, specializing on railroad bridge work. Joseph Gerrick has been identified with the structural steel industry on the Pacific Coast for 20 years and for many years was associated with his brother in Seattle under the name Gerrick & Gerrick. Offices have been opened in the Call building.

* * *

COLUMBIA STEEL CORP., Salt Lake City, Utah, has bought the iron ore holdings of the Milner-Dear-Lerch Iron Mountain Co. It consists of 51 claims covering 921 acres, near Cedar City, Utah. The ore is said to be high grade hematite averaging 58 per cent iron. The properties have been prospected and indications are a large reserve of ore exists there. Mining operations will be started next spring. A branch of the Union Pacific railroad is to be extended to the property.

* * *

WC. BRADLEY, Columbus, Ga., has bought control of the stock of the Columbus Iron Works in that city and will reorganize the company. The management and character of business will not be changed. Henry I. Struppa, formerly secretary and treasurer, has resigned and has been succeeded by Elliott S. Waddell. The company is one of the oldest in the South, being organized in 1853. During the Civil war it was taken over by the confederate government and operated as a naval iron works.

* * *

THE foundry plant of the Detroit Stoker Co. at Bowling Green, O., will be moved to Monroe, Mich., Jan. 1, when factory buildings now planned for construction will be completed. Contracts for erecting the buildings have been let to H. K. Ferguson Co., Cleveland. Three units will be built, a foundry, 150 x 162 feet; a pattern shop, and pattern storage building, 60 x 82 feet, and a sand and coke storage building, 20 x 140 feet. The officers are: W. H. Rea, Detroit, president; J. W. Thompson, Detroit, vice president; W. R. Riecks, Monroe, secretary-treasurer, and J. D. Campbell, general superintendent.

* * *

RANE TOOL CO., Jamestown, N. Y., has been organized by Herbert J. Randall and John Neild, formerly with the Precision Engineering Co., to manufacture special machinery, fine tools and gages. A plant has been built, 30 x 100 feet, which will be occupied shortly.

* * *

JOSEPH T. RYERSON & SON, INC., Chicago, has taken over the manufacture and sale of the Harnischfeger line of machine tools, principally boring and drilling machines of the horizontal type, which have been manufactured and sold by the latter for 25 years. The feature of the machine is that the work table is independent of the working portion and is mounted on trucks that run on standard gage tracks and can be moved by that means.

* * *

AN $18,000,000 power plant is being erected on the Ohio river, about 20 miles west of Cincinnati by the Columbia Power Co. The first unit of the plant will be ready for operation in October and the rest in November, the dedication being Nov. 12. P. G. Gossler, president, W. W. Freeman, vice president, and others will speak at the banquet to be held in connection with the dedication program. The new plant will develop 90,000 kilowatts and will supply power to Hamilton, Cincinnati, Dayton and Middleton, and other Ohio, Kentucky and West Virginia cities.

* * *

DUE to exceptionally heavy business, including a number of large orders from Florida where reclamation projects are being carried out, the working force of the Anderson Engine & Foundry Co., Anderson, Ind., has been doubled. G. H. Blaker, formerly of New York, has been made sales manager. He formerly was sales representative in the East. He succeeds R. E. Gray, who was transferred to Florida. L. W. McNamara was sent to New York to replace Mr. Blaker. The company has sold 17 large engines in Florida this year to be used entirely on reclamation work.

Industrial Business Changes

CENTRAL GEAR & MFG. CO., 311 East South street, Indianapolis, Ind., has been bought by the American Spring Clutch Co. of that city, which will continue the manufacture of gears and automotive screw devices.

* * *

W. P. Dahl Tool & Die Co., Indianapolis, has moved to its new plant at 105 West Twelfth street.

* * *

C. F. Bulatti Machinery Co. has moved to its new quarters at 829 Folsom street, San Francisco.

* * *

Fairbanks-Morse Co. has removed its southern distributing branch from New Orleans to Birmingham, Ala.

* * *

Sutton-Raymond Corp., Indianapolis, welding equipment and supplies, has opened a new plant at 108 West Twelfth street.

* * *

The Columbia Steel Corp. has opened offices in the L. C. Smith building, Seattle in charge of M. M. Mossman.

* * *

Wagner Electric Corp., St. Louis, has moved its office and service station at Dallas, Tex., to 2815 Commerce street.

* * *

Crocker-Wheeler Co., Ampere, N. J., will change its name Nov. 1 to Crocker-Wheeler Electric Mfg. Co.

* * *

Paulsen & Nardon Tool & Die Works, Los Angeles, has removed to its new plant at 1255 East Ninth street.

* * *

Barstow Sales Co., sales agent in St. Louis territory for Juruick refrigerating machinery, has moved to larger quarters at 3150 Washington boulevard.

* * *

The plant of the Majestic Engine Co., Goshen, Ind., has been bought by the T. A. Bartlett Co., Chicago, who will use it for the production of electric devices.

* * *

B. & B. Tool & Machine Works, 1847 North Ashland avenue, Chicago, has changed its name to B. & B. Tool Corp. and increased its capitalization from $10,000 to $20,000.

* * *

The Cosma Laboratories Co. now is located at 1545 East Eighteenth street, Cleveland, operating a general industrial consulting business, specializing in applied science and engineering.

* * *

Trunk Rack Co., Fostoria, O., F. J. Bradley president, manufacturer of steel racks for automobiles, has completed removal of its plant to Ypsilanti, Mich., where its output will be increased.

* * *

Industrial Foundries Inc., L. L. Linehan treasurer, has taken over the plant of the Hilton Brass Foundry Co., 371 Boyden avenue, Hilton, N. J. It will produce match plates for iron and brass work.

* * *

Cleveland Metal Products Co., 7609 Platt avenue, S. E. Cleveland, has changed its name to the Perfection Stove Co., to represent better its business. The new name includes the trade name unsold.

* * *

Clark Equipment Co., 616 West Fifty-sixth street, New York, has leased a 2-story building at Sixty-fifth street and West End avenue, 100x100 feet, and will move its plant there. It manufactures automotive accessories.

* * *

Safety Cable Co., Bayonne, N. J., has taken over the Safety Insulated Wire & Cable Co., Bayonne, and the Phillips Wire Co., Pawtucket, R. I. The combined plants contain a floor area of about 550,000 square feet.

* * *

Buhr Machine Tool Co., Ann Arbor, Mich., recently formed, has taken over the patents of the J. F. Buhr Machine Tool Co., manufacturer of multiple drills and taps and has bought the plant of the Forge Products Co., Ann Arbor, Mich., where production will be carried on. Joseph F. Buhr is president and manager and Edward F. Bauer secretary.

* * *

National Novelty Co., manufacturer of metal specialties, weighing and vending machines, has removed to its new factory and office building at 3408 East Lake street, Minneapolis, from its former location at 513 Third street.

* * *

Diamond Power Specialty Corp., Detroit, which is represented at Cincinnati by the Lathrop-Trotter Co., 733 Union Trust building, has extended the Cincinnati territory to include Indianapolis and adjacent territory in central and southern Indiana.

* * *

Ampco Twist Drill & Tool Co., Detroit, and the Ampco Twist Drill Co., Jackson, Mich., have been consolidated under the name Ampco Twist Drill Co., with offices and plant at Jackson. The new company is capitalized at $1,000,000.

* * *

Vom Baur Engineering Corp., Woolworth building, New York, has taken over the electric furnace business of C. H. Vom Baur, who is president of the company. O. W. Wallstedt and A. H. Strong are also active in the new company.

* * *

The Stalnaker Steel Co. has removed its general offices at Pittsburgh from 710 Oliver building, to 1411-12 that building, where larger quarters will enable it to increase its service to its various scrap customers. Other offices are maintained at New York and Cleveland.

* * *

P. R. Pratt, Deep River, Conn., recently organized, Philip R. Pratt president, has bought the plant and business of the Potter-Shell Novelty Works, manufacturer of metal and wire goods and will continue the business. The plant consisting of a machine shop 40x120 feet and a 2-story building 30x100 feet, will be enlarged.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

ATTALLA, ALA.—Walworth Alabama Co., Wiley Alford general manager, has let a contract to the Converse Bridge & Steel Co., Chattanooga, Tenn., for an addition to its warehouse 120 x 240 feet. An elevator will be installed. (Noted July 23.)

EL DORADO, ARK.—Southern Iron & Metal Corp. has been incorporated with $20,000 capital by Frank Seliger and Jack Katsh.

LOS ANGELES, CALIF.—C. F. Braun Co., Alhambra, Calif., manufacturer of oil refinery and public utilities, has let a contract to the Union Iron Works for an addition to its machine shop, for which equipment also will be required.

LOS ANGELES, CALIF.—Peerless Pump Co., Sixty-seventh street and Wilmington boulevard, J. A. Wintroath vice president, is completing an addition 60x80 feet, for added capacity for turbine and centrifugal pumps for irrigation work.

ANSONIA, CONN.—Birmingham Iron Foundry Co. will build an addition to its main machine shop to serve as a shipping room where cars will be handled under roof.

BRIDGEPORT, CONN.—Remington Typewriter Co., Railroad avenue, is building a 3-story addition 40x60 feet, general contract to Stewart Engineering Co., 17 East Forty-second street, New York.

WATERBURY, CONN.—Contract has been awarded to the Inmick Co. of Meridian, Conn., for a casting shop and boiler room for the American Brass Co. here.

AURORA, ILL.—Advance Metal Products Co., North River street, has been incorporated with $10,000 capital to manufacture steel, iron, metals and other products by Daniel Volintine, Carl F. Bornemann and E. L. Lyon. E. L. Lyon, Aurora, is correspondent.

CHICAGO—Midwest Electric Co., care C. E. Frazier, architect, 30 North Dearborn street, will build a 1 and 2-story factory 74 x 105 feet at 1641 Walnut street.

CHICAGO—H. Samuel, care E. C. Ecker & Associates, 110 South Dearborn street, architects, will build a 1-story machine shop 75 x 108 feet, 3613 North Ashland avenue.

CHICAGO—Great Lakes Forge Co., 14 East Jackson boulevard, George C. Rodgson president, has awarded the general contract to the Hallenberg Co., 11 South LaSalle street, for a 1-story addition.

CHICAGO—American Iron Wire Co., J. W. Scott president, 1622 Carroll avenue, will build a 2-story addition 35 x 150 feet. Harry E. Stevens & Co., 4022 West Madison street, architect.

CHICAGO.—Kennedy Supply Co., 231 South LaSalle street, has been incorporated with $100,000 capital to manufacture plumbing supplies by John M. Tuchy, D. Harold Davis and Hayes Kennedy. Ryan, Cond & Livingston, 983 Illinois Merchants Bank building, are correspondents.

CHICAGO.—Sart Oil Burner Corp., 1043 West Seventy-ninth street, has been incorporated with $10,000 capital to manufacture oil burners, containers, etc., by H. T. Paulson, M. V. Minahan, and Robert E. B. Randle. M. V. Minahan, 50 West Randolph, is correspondent.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

ELGIN, ILL.—Elgin National Watch Co., DeForest Holber president, will build two additions, four stories, 30 x 400 and 30 x 500 feet. George E. Morris, Sherwin building, is architect. Plans being drawn.

HARVEY, ILL.—Ingalls Shepherd division Wyman Gordon Co. will build a 1-story addition 46 x 113 feet. General contract has been let to Madory Bros., Harvey.

HARVEY, ILL.—Anderson & Vail Stamping Co., 154th and Wood streets, has been incorporated with $6000 capital to manufacture wheels and parts, steel stampings, etc., by W. K. Steele, Lazarus Krinsley and Albert B. Moore. Foreman, Bulford, Steele & Schultz, First National Bank building, are correspondents.

QUINCY, ILL.—General Radiator Co., C. W. Gillette chairman, 805 Continental bank building, Chicago, will build a 2-story plant at Twelfth street and the Chicago Burlington & Quincy railroad.

ST. ANNE, ILL.—Midwest Crusher Pulverizer Co. has been incorporated with $50,000 capital to manufacture and sell agricultural and industrial machinery and implements by Charles A. Fischer, Ann A. Woods, J. B. Sedberry and Rachel Fischer. Charles Y. Paltzer, 112 West Adams street, is correspondent.

MARYVILLE, KAN.—Union Pacific railroad has awarded general contract to American Construction Co., 425 Sunderland building, Omaha, Neb., for reinforced concrete and brick roundhouse with ten stalls to cost about $70,000.

LOUISVILLE, KY.—Kentucky & Indiana Terminal railroad, W. S. Campbell chief engineer, will build a shop building, storehouse and office building here.

BALTIMORE, MD.—Empire Iron Works Inc., has been incorporated with $100,000 capital and has taken over a company of the same name with plant at 1022 Granby street, which will be enlarged. Jacob Myers and Henry E. Buckner are in charge.

BOSTON—Hunt-Spiller Mfg. Corp., South Boston, 383 Dorchester avenue, are having plans made for a 1-story power house 40x85 feet.

NEWBURYPORT, MASS.—Towle Mfg. Co., 260 Merrimac street, will build a 3-story factory for which punch presses will be required.

SOMERVILLE, MASS.—Underhill Bros. Co., Cummings street, is rebuilding its burned plant, C. H. Holmes Construction Co., 67 Bonair street, having the general contract.

SOUTH BOSTON, MASS.—The Gillette Safety Razor Co. will build a boiler house and blade building.

WORCESTER, MASS.—Baldwin Chain & Mfg. Co. has bought a site at Auburn, Mass., on which it plans to build a plant.

DETROIT, MICH.—Gustav C. Deaske, 6051 Brush street, will build a 2-story tin shop 20 x 100 feet on Grand River avenue.

DETROIT—Hudson Motor Car Co., 12601 Jefferson avenue, will ask bids soon on a 2-story powerhouse 65x70 feet. Albert Kahn Inc., Marquette building, is architect.

DETROIT—Bohn Aluminum & Brass Corp., Charles B. Bohn president, 2512 North Grand boulevard, will build an addition to its furnace building, one story, 190 x 240 feet. C. W. Brandt, 1114 Kresge building, is architect.

DETROIT—Wonder Washer Inc. has been incorporated with $25,000 capital to manufacture machines and household appliances by Johanna Krauss, Frank S. Hughes and William Krauss, 1537 Broadway.

DETROIT—Detroit Body Die Co. has been incorporated with $50,000 capital and 10,000 shares no par to manufacture dies, tools and fixtures by George D. Shanahan, 1936 Atkinson avenue, Leo. J. Williams, Mt. Clements, and Rosalind J. Shanahan, Detroit.

HOLLAND, MICH.—City of Holland is in the market for equipment for its new municipal power plant, including boilers, stokers and coal-handling equipment.

LANSING, MICH—Lindell Drop Forge Co. is in the market for equipment for an addition now being erected.

LANSING, MICH.—Michigan Sheet Metal Co. is completing an addition to double its productive capacity.

MARQUETTE, MICH.—City of Marquette has bought two diesel engines from the Nordberg Mfg. Co., Milwaukee, for an auxiliary electric power plant.

MARQUETTE, MICH.—The general contract for municipal power house has been awarded to Pfeffer Construction Co., 402 Builders Exchange, Duluth, Minn., for a price of $28,800.

RIVER ROUGE, MICH.—River Rouge Co., subsidiary of the American Light & Traction Co., is building gas plant here to have daily capacity of 12,000,000 cubic feet. Contract has been let to Koppers Construction Co., Pittsburgh for general construction and to the Bartlett-Hayward Co., Baltimore, Md., for a waterless gasholder.

STURGIS, MICH.—Morency Van Buren Mfg. Co. has awarded a general contract to Boyen Construction Co., Hagerman-Freeland Building, for a 1-story addition 50x76 feet to its brass foundry.

ZEELAND, MICH.—Acme Stamping Works, John A. Donia, president, manufacturer of brass automobile fittings, will build a plant covering 10,000 square feet.

ALEXANDRIA, MINN.—Bids are being tak-

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.00 to 10.00
Algerian low phosphorus, 52 to 54 per cent	9.00 to 10.00
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.50 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.	nominal
Indian, minimum 47 per cent.	nominal
Caucasian, 53 to 55 per cent.	
....Washed, 43 to 45 cents c.i.f. tidewater	

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.50 to 17.50

en by H. S. Campbell, city clerk, for a 16-inch cast and riveted iron pipe line from municipal power plant to Lake Agnes. Charles L. Pillsbury Co., 2344 Nicollet avenue, Minneapolis, is engineer.

BEMIDJI, MINN.—C. H. Johnston, 716 Capital Bank building, St. Paul, is making plans for a heating and power plant to be built by the Minnesota state board of administration for the state teachers' college to cost $100,000.

MILACA, MINN.—Bock Building Co. is the general contractor on the new electric power plant being built by the Eastern Minnesota Power Co.

MINNEAPOLIS, MINN.—Flexible Traffic Control Co. has been incorporated with a capital of $75,000 by John Corser to manufacture mechanical controls for traffic.

MINNEAPOLIS, MINN.—Electrashot Mfg. Co., has been incorporated with a capital of $50,000 by David Shearer to manufacture electric and mechanical devices.

MINNEAPOLIS, MINN.—The general contract has been awarded to Martin Construction Co., 529 Seventh street, S., for 2-story factory building to be built by the McGee-White Corp., truck body equipment, 1311 Hennepin avenue, at a cost of $70,000.

SOUTH ST. PAUL, MINN.—Chicago, Milwaukee & St. Paul railroad, 80 East Jackson street, Chicago, Ill., has awarded general contract to H. C. Struchen, 405 Dakota building, St. Paul, for machine shops, roundhouses, etc., on Pigs Eye Island to cost $1,000,000.

ST. PAUL, MINN.—Waldorf Paper Products Co. has awarded general contract to Paul Steenberg Construction Co., 914 Builders Exchange building, for a 56x100 reinforced concrete and fireproof power plant at Myrtle and Pillsbury avenues to cost $100,000. H. A. Sullwold, 107 East Third street, is architect.

ST. PAUL, MINN.—Griggs, Cooper & Co., University and Fairview avenues, have awarded general contract to F. J. Romer Construction Co., 190 Ramsey street, for a garage 70x140 and machine shop 40x40, each 1-story to cost $50,000. Toltz, King & Day, Inc., Builders Exchange, are the architects.

ST. PAUL, MINN.—Pence Auto Co., 800 Hennepin avenue, Minneapolis, has awarded general contract to Nasvik-Sauk Construction Co., 551 Gilfillan block, St. Paul, for 2-story 150x160 reinforced concrete and brick garage on Sixth and Exchange streets to cost $250,000. C. H. Johnston, 715 Capital Bank building, is the architect.

KANSAS CITY, MO.—Black, Sivles & Bryson Mfg. Co. has been incorporated with $200,000 capital by A. H. Black, 7500 East Tenth street and associates, to manufacture steel tanks.

OWENSVILLE, MO.—All-Locking Zinc Shingle Mfg. Co., Joseph T. Tate secretary, has been incorporated with $100,000 capital and will build a plant 50 x 150 feet and install presses, dies and other roofing making machinery.

SPRINGFIELD, MO.—St. Louis & San Francisco railroad, B. F. Jonah chief engineer, St. Louis, will increase its facilities and yard equipment here.

ST. LOUIS, MO.—Kennedy Plumb Corp. has been incorporated by I. R. Kelso, Cape Girardeau, Mo., and others, to manufacture tools.

GREAT FALLS, MONT.—Anaconda Copper Mining Co., is having plans made for the enlargement of electrolitic zinc plant and copper refinery to increase capacity to 240,000,000 pounds per year. Zinc plant to be completed Jan. 1, 1926 and copper refinery to be completed Dec. 31, 1926.

LEBANON, N. H.—Niles Machine Co., Arthur F. Niles, president, Caleb H. Niles, vice president, has taken over the plant of the Lebanon Machine Co. and will operate it as a jobbing foundry.

BLOOMFIELD, N. J.—Westinghouse Lamp Co., Clearfield avenue, will build a factory addition 52 x 110 feet and 50 x 93 feet. Stone & Webster Inc., Boston, are engineers.

NEWARK, N. J.—Atlas Fence Co. Inc., Frank C. Zuch president, 1 Clinton street, will build a 1-story factory 50 x 100 feet.

NEWARK, N. J.—General Steel Casting Co. contemplates rebuilding the portion of its plant which recently was burned.

NEWARK, N. J.—Co-Service Oil Co., 196 Halsey street, will build a new storage and distributing plant at Kearney, N. J., including a machine shop and repair department.

NEWARK, N. J.—Diamant Tool & Mfg. Co. Inc., Badger avenue and Runyon street, has leased larger quarters at 401 Mulberry street and will provide new equipment.

NEWARK, N. J.—Kroydon Co. has been formed as a subsidiary by Kraeuter & Co., 583 Eighteenth avenue, to manufacture golf clubs and will build a plant 60x500 feet, including a steel foundry, at Hilton, N. J.

NEWARK, N. J.—Zeh & Hahnemann, 190 Vanderpool street, will build a 1-story machine shop 17 x 99 feet. William C. Phelps & Co., 21 Fulton street, has the general contract.

NEWARK, N. J.—Dura Electric Specialties Co. has been incorporated with $10,000 capital to manufacture equipment and appliances for electrical use by Beatrice Wolf, Anna Kalnitski and Della Misuriello. Benjamin Singer, Newark, is attorney.

RED BANK, N. J.—Coal Savor Co. has been incorporated with 5000 shares common stock no par value to conduct a manufacturing business by Herman R. Weilbacher, Red Bank; Edward J. Connolly, Brooklyn; J. Frey, Queens Village, N. Y. Connolly & Frey, Brooklyn, are attorneys.

WENONAH, N. J.—Bassett Evans Co. has been incorporated with $125,000 capital to manufacture steel by Edward Evans, Elizabeth, N. J.; C. Evans, Wenonah; William W. Bassett, Aldan, Pa. Bleakly, Stockwell & Burling, Camden, N. J., is attorneys.

BROOKLYN, N. Y.—American Shade Roller Co., 239 Twenty-sixth street will build a 4-story factory 88 x 100 feet. J. S. Kennedy, 157 Remsen street, is architect.

BROOKLYN, N. Y.—Hassler Iron Works has been incorporated with $500 capital by R. Hassler, A. Hassler and J. F. Seacriff. T. J. Kinsella, 215 Montague street, is attorney.

BROOKLYN, N. Y.—Mohegan Tube Co., 302 Scott avenue, manufacturer of metal and steel tubing, will build a 5-story addition, 90x281 feet, the general contract going to the Commonwealth Engineering Co., 103 Park avenue, New York.

BUFFALO, N. Y.—Tobol Iron Works has been incorporated with $30,000 capital by J. C. Tobolski, W. V. Malican and L. F. Grzegorski. Ferguson & Magavern, Buffalo, are attorneys.

BUFFALO, N. Y.—American Retort Corp. has been incorporated with $100,000 capital by I. B. Newberry, E. L. Gathier, and A. B. McConnell. R. W. Werner, Buffalo, is attorney.

JAMESTOWN, N. Y.—Rane Tool Co., 59 Hopkins avenue, tool manufacturer, is building

a plant 30x100 feet for which equipment will be required.

MOUNT MORRIS, N. Y.—Mount Morris Valve Corp., recently organized, will establish a plant for the manufacture of valves. Frank VanDorn is manager.

NEW YORK—Canton Steel Ceiling Co., 497 West street, has bought adjoining property 70x100 feet for extending its plant.

NEW YORK—Air Pre-Heater Corp. has been incorporated with 10,000 shares $100 each and 7500 common in par value to manufacture air compressors by P. T. Henson, T. H. Dugan and E. Sunblad, 25 Broadway.

NEW YORK—Silent Writing Machine Co. has been incorporated with 200 shares no par value to manufacture typewriters by B. Prigosen and G. Aarons. P. M. Abrahams, 522 Fifth avenue, is attorney.

NEW YORK—Loeb, Allmayer & Redlich, Inc., 375 West Broadway, suffered heavy damage by fire in its plant devoted to the manufacture of metal-edged boxes. The plant will be rebuilt.

NEW YORK—Precious Metals Research Works has been incorporated with $10,000 capital to manufacture alloys by A. Turmen and L. Turmen. E. M. Feinberg, 112 John street, is attorney.

NEW YORK—Bulldog Lock Co. has been incorporated with $20,000 capital to manufacture locks by J. B. Baron, B. E. Stearns and D. Roseman. S. Daniel, 1440 Broadway, is attorney.

NEW YORK—Manhasset Iron & Steel Products Co. has been incorporated with $20,000 capital by Z. Kafka, E. Muller and J. K. Gurevitch. Dorff & Levy, 261 Broadway, are attorneys.

NEW YORK—Wittenmaier Machinery Co. of New York has been incorporated with $50,000 capital to manufacture machinery by S. Sholtes, F. Wittenmeier and F. Greenwalf. Goldman & Novick, 291 Broadway, are attorneys.

NEW YORK—Jiffy Specialties has been incorporated to manufacture automobile transmission brake bands and automotive accessories with $60,000 capital by L. D. Joseph, P. Greenfield and H. Sapir. M. M. Cohn, 276 Fifth avenue, is attorney.

NEW YORK—Standard Diamond Tool Corp. has been incorporated with 500 shares common stock no par value to manufacture tools by J. Rosenberg, J. Gross and E. D. Krauss. S. A. Frazier, 40 West Forty-seventh street, is attorney.

NEW YORK—Alacant Corp. has been incorporated with 100 shares common stock no par value to manufacture machinery and special products by A. N. Mann, V. J. Cronin and L. J. Bradley. Bruise & Mann, 347 Madison avenue, is attorney.

NEW YORK CITY.—The Standard Oil Co. of New York, 26 Broadway, has awarded a contract for a $165,000 storage plant, garage and repair shop, at Albany, N. Y., to the Aberthaw Construction Co., 27 School street, Boston.

NEW YORK CITY.—The general contract for a large power plant for the Consolidated Gas Co., 130 East Fifteenth street, has been awarded to the William F. Kinney Co., 44 East Twenty-third street. The plant, which is reported to cost around $20,000,000, will be erected at Hunts Point road, the Bronx river.

OLEAN, N. Y. Seamon Container Co. has bought the plant, stock and business of the E. B. VanAtta Co., manufacturer of hydraulic presses and pumps.

WATERTOWN, N. Y.—Northern Oil Fuel Co. is preparing to build a storage plant here, requiring electrical pumping machinery.

CANTON, O.—Canton Auto Spring Co. has been incorporated with $500 capital by Henry A. Schrantz, Ralph Staley, N. A. Staley and Homer A. Black.

CINCINNATI—Eastern Machinery Co. has been incorporated with $10,000 capital by J. C. Herbert, J. F. Wieser, K. Wirching, M. L. Deaver and M. Rush.

CINCINNATI, O.—American Laundry Machinery Co. has let a contract to the Ferro Concrete Construction Co., Cincinnati, for a factory and office building at its plant, Tennessee and Section avenues, Norwood, for which equipment will be needed.

DAYTON, O.—Dayton Pump & Mfg. Co., Webster street, will build a 1-story addition to its plant.

DAYTON, O.—A. A. Simond Co., Negley place and Summit street, manufacturer of cutlery and knives, will build a 1-story addition.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 46.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	41.00 to 43.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	$40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK
Per Net Ton Seaboard Base

9 x 4½ x 2½	$65.00

CHROME BRICK
(Per Net Ton)

9 x 4½ x 2½	45.00 to 48.00

DEFIANCE, O.—Defiance Automatic Screw Co. is having plans drawn for a new plant on the line of the Wabash railroad for which a site has been bought, to triple present capacity.

TOLEDO, O.—Willys Overland Co., John N. Willys president, is planning a forge shop 75 x 750 feet on Central avenue.

TOLEDO, O.—Toledo Rex Spray Co., W. W. Farnsworth president, Waterville, O., will build an addition at Nebraska and Montrose avenues.

TOLEDO, O.—Acme Iron & Metal Inc. has been incorporated with $500 capital by M. C. Seeley, C. V. Wolfe, E. P. Buckenmeyer, E. E. Frantz and H. L. Long.

TULSA, OKLA.—Jackson Burglar & Signal Alarm Co. has been incorporated with $12,000 capital by D. S. Jackson and A. E. Jackson, Miami, Fla.

LATROBE, PA.—Latrobe Electric Steel Co., M. W. Saxman president, will build a 1-story rolling mill building 69 x 400 feet. General contract to Fort Pitt Bridge Works, Oliver building, Pittsburgh.

NAZARETH, PA.—General contract has been awarded by the Bates Valve Bag Co., 8200 South Chicago avenue, Chicago, for a 90x200-foot building, to be used primarily as foundry. The Hughes Foulkrod Co., Commonwealth building, Philadelphia, has been awarded the general contract.

OIL CITY, PA.—Finney Mfg. Co., manufacturer of steel tacks, G. R. Finney, president, is preparing to double the capacity of its plant.

PHILADELHPIA—Ross R. Hipple will build a 1-story machine shop at Robinson street and Girard avenue, general contract being awarded to Getcham & McQuade.

PHILADELPHIA—Bids have just been closed by E. Hubschman & Sons, Inc., Orianna & Williows avenue, for a factory addition. The Ballinger Co. is architect.

PHILADELPHIA—Peerless Spring Mfg. Co. has bought a plant at 2628 Martha street, 110x135 feet and will equip it for the production of steel springs.

PHILADELPHIA.—Bids were closed Oct. 2 by William Lowenthal, architect, on a factory building for the Jacob Blum Co., Frankford and Wildey streets.

PHILADELPHIA, PA.—$12,500 factory building will be erected by John Yaldezian, Forty-ninth and Folsom streets. Harry Devletin, 5948 Walnut, has been awarded the general contract.

PHILADELPHIA—Ferro Machine Screw Co., 4317 North Third street, will build a 1-story machine shop, the general contract being let to Charles J. Erny, Broad and Rockland streets.

PHILADELPHIA—Manual training equipment will be installed in the $1,000,000 high school to be erected at Seventeenth and Luzerne streets. Erwin T. Catharine, is preparing plans.

PHILADELPHIA.—The M. A. Long Co., Baltimore, has been awarded a contract by the Reading Co. for a grain elevator here requiring about 4000 tons of concrete reinforcing bars which will be placed at once.

PHILADELPHIA.—Work has been started by the Edward G. Budd Mfg. Co., Twenty-fifth street and Hunting Park avenue, maker of steel automobile bodies, on a $1,500,000 upholstering and finishing plant on Charlevoix avenue, Detroit. The main building will be four stories high, 100x725 feet.

PITTSBURGH—Manchester Auto & Machine Co., 1216 Liverpool street, is taking bids on a 2-story machine shop and service building 60 x 140 feet. A. M. Bowman, Bessemer building, is architect.

POTTSTOWN, PA.—Spicer Mfg. Co., manufacturer of universal joints and drop forgings, will build a 1-story addition 60 x 85 feet at its plant here.

SELLERSVILLE, PA.—Carbon & Stainless Steel Products Corp. has been incorporated under a Delaware charter with $150,000 capital to manufacture these materials by C. H. Bick, Pauline Bick and William C. Bick, all of Sellersville.

WARREN, PA.—A syndicate of Warren men is being formed to take over the plant of the Gisholt Machine Co. at Warren for conversion into a plant for production of art metal furniture.

CHATTANOOGA, TENN.—Corley Mfg. Co., Cowart and Nineteenth streets, manufacturer of sawmill machinery, will rebuild its burned plant. A. G. Corley is president.

CHATTANOOGA, TENN.—Chattanooga Stamping & Enameling Co., Manker Patten

president, will build two additions, 50 x 100 and 30 x 60 feet.

CHATTANOOGA, TENN.—National Metal Products Co., 1200 Charter street, C. D. Martin, president, has bought the plant and business of the Chattanooga Roofing Co. and plans erecting a new plant.

ISABELLA, TENN.—Ducktown Chemical & Iron Co. has been incorporated by F. Linton Martin and Edgar D. Walters.

BASTROP, TEX.—Texas Power & Light Co. is having plans made for a power plant with an additional output of 100,000 horsepower. Announcement of this design made by W. B. Head, Dallas, Tex., chairman of the board of directors.

DALLAS, TEX.—Texas & Pacific railroad, E. F. Mitchell chief engineer, Dallas, has let contract to the Ware Co., 1614 East Missouri street, El Paso, Tex., for roundhouse, machine shop, repair and other buildings here. (Noted Oct. 8 under Shreveport, La.)

TEXARKANA, TEX.—Texarkana Machine Shops has been incorporated with $25,000 capital by J. S. Young and J. R. Robinson.

WACO, TEX.—W. G. Gilmore Corp., W. G. Gilmore president, 703 North Sixth street has been formed to manufacture acetylene gas appliances and accessories and is in the market for materials.

ST. JOHNSBURY, VT.—Hooker Mfg. Co., has sold its foundry to the St. Johnsbury Gray Iron Foundry Co., recently formed to operate the plant.

PORTSMOUTH, VA.—Portsmouth Machine & Welding Co. has been incorporated with $21,000 capital by C. L. Williams, South Norfolk, and M. T. Winslow, Portsmouth.

SEATTLE—Washington Machinery & Storage Co. plans the construction of a large machine shop building, one story, 60 by 120 feet, on a site recently acquired at 7329 East Marginal Way. The general contract has been awarded to the Booker Construction Co.

SEATTLE—American Sheet Metal Products, 1902 Ninth avenue south, has been incorporated by O. R. Wilhelm and F. B. Cade.

SEATTLE, WASH.—Occidental Sheet Metal Works, Rainier avenue, has awarded to Jenkins & Kaufman the contract for constructing a 1-story factory building 92x105 feet.

SEATTLE—F. S. Lang Mfg. Co., 2756 First avenue South, manufacturer of stoves and ranges, will build a 1-story addition 60 x 150 feet. C. L. Morris Construction Co., Smith building, has the contract.

SPOKANE, WASH.—Power, Oil & Gas Co. has installed coal tar extracting equipment and four 7750-gallon storage tanks.

HUNTINGTON, W. VA.—Chesapeake & Ohio railroad, C. W. Johns chief engineer, Richmond, Va., has let a contract to the General Iron Works, Cincinnati, for structural steel for its new boiler shops.

HUNTINGTON, W. VA.—International Nickel Co., 67 Wall street, New York, will build two additions to its plant here each 65x125 feet as polishing departments for its nickel tube mills. A. F. Shoffstall is general manager.

KIEL, WIS.—Architect W. F. Neumann, Caswell block, Milwaukee, will take bids after Oct. 1 for the erection and equipment of a $35,000 addition, 35 x 150 feet, to the main plant of the Kiel Woodenware Co. here.

NEENAH, WIS.—J. W. Hewitt Machine Co., 517 North Commercial street, will build a 2-story machine shop addition 40x75 feet, to be used largely as a forge shop. C. R. Meyer & Sons Construction Co., Oshkosh, Wis., has the general contract.

RACINE, WIS.—Murray Body Corp., Detroit, has bought the H. & M. Body Corp., Racine and will equip the plant for production of commercial bodies instead of passenger bodies. J. S. O'Rourke is in charge of the plant.

YOCENA, WIS.—Columbia county board, J. T. Henton, commissioner, court house, Portage, Wis., will build a 1-story warehouse 42 x 80 feet. General contract to Fritz & Feltz, Shawano, Wis.

Business in Canada

STAVE LAKE, B. C.—The formal opening of the B. C. Electric Railway Co.'s power plant here took place recently. The plant was built at a cost of $3,500,000. The company now plans further extensive power development covering the next 15 years, an early start being proposed on development on the Bridge river, north of Vancouver, B. C. The first unit of the proposed plant wil cost approximately $13,000,000 and will provide 60,000 horsepower.

NORTH TORONTO, ONT.—The city council, Toronto, carried a by-law authorizing the construction of a sewage plant and system here to cost $11,000,000.

SWANSEA, ONT.—The Steel Co. of Canada, Ltd., Hamilton, Ont., has awarded contracts in connection with addition to its plant here.

CAP DE LA MADELEINE, QUE.—The town council has awarded a contract to the Canadian Fairbanks-Morse Co., Ltd., 84 St. Antoine street, Montreal, Que., for supply of pumping units for waterworks plant.

KINGDON, QUE.—The Kingdon Mining, Smelting & Mfg. Co., 314 Beaver Hall Hill, Montreal, Que., is in the market for motors, fans, furnaces, hoists, cranes, etc., for new plant here.

New Trade Publications

SMOKELESS COAL—A description of the region where it is produced and of the advantages of its product are included in a booklet issued by the Broad Top Coal Operators association, Huntingdon, Pa.

PUNCH ATTACHMENTS—A broadside showing more than 30 special attachments for its punch presses, to do a wide variety of work, is issued by the Cleveland Punch & Shear Works Co., Cleveland. Incidentally the company also shows some of its other products.

MAGNETIC CLUTCHES—Uses of magnetic clutches on synchronous motor drives where the starting is severe are treated in a booklet by the Cutler-Hammer Mfg. Co., Milwaukee. Working data are given and features of the clutches are described.

COLD WIRE MILLS—Blake & Johnson Co., Waterbury, Conn., has issued a bulletin showings its cold rolling mills for the manufacture of flat wire and other sections from round wire. Illustrations of the various types of mills are presented and a table of specifications of the several machines.

RIVET HEATERS—Heating rivets on the job, whether in shop or outside, by electricity, is described in a bulletin by the American Hoist & Derrick Co., St. Paul. Various types of heaters are shown and their operation explained. Application of heat by means of auxiliary side contacts which will allow one part to be brought to a higher degree is presented graphically and convincingly. A ring heater which heats rings by induced current is also featured, as well as a magnetic tool support, a bar welder and a waterproof magnetic chuck.

TWIN-TYPE METERS—Value of two records synchronized as to time as comparison of electric apparatus is shown in a bulletin by the Esterline-Angus Co., Indianapolis, Ind. The bulletin is in the form of an actual chart used in the twin meter and method of handling and filing them is demonstrated.

COAL HANDLING EQUIPMENT—Freeman-Riff Co., Terre Haute, Ind., is capitalizing its installation of coal-handling, storing and weighing equipment at Purdue university Lafayette, Ind., by a broadside covering this installation in detail and also giving a list of other installations.

CARBON BRUSH GRADES—A change in its designations of carbon brushes to fit developing conditions is explained in a circular by the National Carbon Co., Inc., Cleveland. A simple method has been adopted, using the old grade number and a suffix numeral to indicate the new grade.

STEEL FILLER RODS—A treatise on the properties of iron or steel filler rods for gas and arc welding has been published by the Chicago Steel & Wire Co., Chicago. It is planned to follow the booklet by a second, which will treat of the use of standardized filler rods. Much that is new is presented and users of welding rods may gain valuable information.

WIRE ROPE—Bruntons, Musselburgh, Scotland, which is manufacturing wire rope of a special type under license from the American patentee, has issued a booklet illustrating basic improvements in wire rope represented by the special rope it produces. The booklet is well illustrated as to the formation of the strands of the rope and the attachments used in connection with it.

TIME LIMIT CONTROLLER—Cutler-Hammer Mfg. Co., Milwaukee, illustrates its inductive time limit controller in a bulletin just issued. In this type limit control is obtained without dashpot or other mechanical means for securing the uniform period of acceleration. Various installations are described and the complete panel with types of magnetic switches is shown.

SINGLE PASS BOILER—Edge Moor Iron Co., Edge Moor, Del., manufacturer of water tube boilers, is issuing a booklet describing its installation of single pass boilers in the plant of the Binghampton Light, Heat & Power Co. plant at Binghampton, N. Y. The booklet presents in great detail the construction and operation of this installation and its advantages in the utilization of heat for the production of steam economically.

Iron and Steel Production

Compiled by IRON TRADE REVIEW

Pig Iron

	—Stacks— No.	In	——Output—— Total	Av.Daily
1907				
January	376	311	2,174,801	70,155
February	374	308	2,047,036	73,109
March	377	304	2,186,709	70,539
April	378	327	2,226,708	74,223
May	391	329	2,291,030	73,904
June	392	341	2,237,420	74,580
July	396	335	2,253,243	72,685
August	397	329	2,243,656	72,376
September	399	329	2,174,148	72,471
October	401	314	2,359,690	76,119
November	398	226	1,820,558	60,685
December	398	154	1,234,733	39,830
Total	.....	.....	25,249,732	*69,177
1908				
January	398	139	1,081,813	34,897
February	401	150	1,086,809	37,476
March	398	154	1,229,856	39,672
April	398	146	1,155,122	38,504
May	396	145	1,168,002	37,677
June	395	154	1,106,300	36,876
July	397	166	1,228,604	39,632
August	399	181	1,366,019	44,065
September	399	189	1,416,252	47,208
October	400	200	1,573,824	50,764
November	402	212	1,582,314	52,744
December	403	221	1,723,664	55,602
Total	.....	.....	15,718,579	*42,947
1909				
January	406	234	1,787,473	57,683
February	407	233	1,682,470	60,088
March	406	229	1,822,024	58,793
April	406	224	1,731,406	57,687
May	407	236	1,866,757	60,218
June	408	240	1,929,929	64,334
July	409	258	2,088,620	67,375
August	412	278	2,232,642	72,021
September	413	297	2,378,655	79,201
October	413	309	2,589,681	83,538
November	414	311	2,532,740	84,425
December	416	314	2,682,702	86,539
Total	.....	.....	25,325,099	*69,383
1910				
January	416	311	2,599,995	83,871
February	417	311	2,429,525	86,768
March	417	310	2,588,736	83,508
April	418	291	2,477,700	82,590
May	419	279	2,374,802	76,607
June	420	271	2,288,279	76,276
July	420	254	2,158,124	69,617
August	422	244	2,103,791	67,864
September	420	234	2,048,461	68,282
October	421	230	2,086,205	67,297
November	421	218	1,910,385	63,679
December	421	193	1,779,899	57,416
Total	.....	.....	26,845,902	*73,550
1911				
January	421	210	1,766,658	56,985
February	421	226	1,781,285	63,617
March	421	236	2,165,764	69,863
April	421	220	2,044,904	68,163
May	421	206	1,871,388	60,367
June	421	202	1,773,282	59,109
July	423	196	1,776,108	57,294
August	423	206	1,921,832	61,995
September	423	216	1,973,918	65,797
October	421	214	2,092,061	67,486
November	421	214	1,999,100	66,637
December	422	215	2,032,301	65,558
Total	.....	.....	23,198,601	*63,558
1912				
January	421	227	2,052,806	66,220
February	422	235	2,098,796	72,372
March	420	237	2,411,529	77,791
April	421	239	2,377,621	79,254
May	423	243	2,503,841	80,753
June	424	242	2,433,737	81,125
July	422	245	2,402,567	77,502
August	423	255	2,500,163	80,650
September	419	262	2,444,454	81,482
October	422	280	2,683,645	86,569
November	423	289	2,639,562	87,985
December	423	291	2,777,292	89,590
Total	.....	.....	29,325,513	*80,124
1913				
January	423	297	2,787,800	89,929
February	423	306	2,578,670	92,095
March	423	278	2,762,823	89,123
April	421	297	2,754,353	91,812
May	421	285	2,816,825	90,865
June	422	283	2,616,883	87,229
July	422	264	2,558,275	82,525
August	424	260	2,537,018	81,839
September	425	258	2,494,098	83,137
October	425	244	2,539,924	81,933
November	424	225	2,229,960	74,332
December	424	191	1,976,138	63,746
Total	.....	.....	30,652,767	*83,980
1914				
January	423	199	1,879,336	60,624
February	423	219	1,888,607	67,450
March	423	232	2,341,551	75,534
April	422	212	2,261,501	75,383
May	422	198	2,097,019	67,646
June	422	193	1,904,566	63,486
July	422	187	1,955,324	63,075
August	422	187	1,996,483	64,403
September	422	180	1,882,718	62,757
October	422	162	1,767,227	57,007
November	421	150	1,501,269	50,042
December	421	154	1,495,325	48,236
Total	.....	.....	22,970,926	*62,934
1915				
January	421	165	1,591,024	51,323
February	421	179	1,666,592	59,521
March	421	190	2,046,280	66,009
April	421	197	2,114,518	70,484
May	421	207	2,255,157	72,747
June	421	221	2,369,932	78,998
July	421	234	2,563,311	82,687
August	421	246	2,774,825	89,510
September	420	266	2,834,342	94,478
October	420	276	3,120,340	100,656
November	421	285	3,035,235	101,174
December	421	295	3,201,605	103,278
Total	.....	.....	29,573,161	*81,022
1916				
January	421	304	3,171,878	102,319
February	421	312	3,078,548	106,157
March	422	315	3,327,630	107,343
April	422	320	3,225,496	107,517
May	423	321	3,364,584	108,535
June	423	325	3,213,818	107,127
July	419	316	3,221,127	103,907
August	419	317	3,197,838	103,156
September	419	326	3,208,041	106,935
October	419	328	3,508,180	113,167
November	420	322	3,317,805	110,593
December	422	309	3,184,178	102,715
Total	.....	.....	39,019,123	*106,609
1917				
January	422	310	3,159,839	101,930
February	422	317	2,649,935	94,641
March	423	331	3,255,813	105,026
April	425	333	3,328,061	110,936
May	425	340	3,413,677	110,119
June	427	347	3,260,234	108,675
July	429	351	3,337,442	107,659
August	431	357	3,238,970	104,483
September	431	342	3,140,742	104,691
October	433	354	3,296,286	106,332
November	434	344	3,198,597	106,620
December	435	321	2,885,380	93,077
Total	.....	.....	38,164,976	*104,561
1918				
January	435	294	2,403,227	77,523
February	435	319	2,318,242	82,723
March	438	338	3,209,996	103,548
April	437	351	3,273,355	109,112
May	437	360	3,451,884	111,351
June	437	353	3,316,148	110,538
July	437	364	3,408,584	109,954
August	439	371	3,378,479	108,983
September	438	364	3,413,223	113,774
October	437	364	3,482,392	112,335
November	437	360	3,347,844	111,595
December	435	351	3,434,114	110,778
Total	.....	.....	38,437,488	*105,308
1919				
January	435	330	3,306,279	106,654
February	435	311	2,943,347	105,120
March	435	279	3,088,023	99,614
April	435	216	2,474,374	82,479
May	433	197	2,107,729	67,991
June	433	199	2,114,028	70,467
July	434	240	2,424,212	78,200
August	432	266	2,742,081	88,453
September	433	163	2,480,790	82,692
October	432	216	1,864,424	60,142
November	432	252	2,407,369	80,244
December	432	262	2,626,074	84,711
Total	.....	.....	30,578,730	*83,777
1920				
January	432	285	3,012,373	97,172
February	432	305	2,984,257	102,904
March	433	315	3,375,768	108,895
April	433	278	2,752,670	91,754
May	433	297	2,991,825	96,510
June	433	302	3,046,623	101,553
July	434	291	3,043,918	98,190
August	434	306	3,145,536	101,468
September	434	317	3,124,308	104,143
October	435	290	3,288,341	106,075
November	435	255	2,935,081	97,836
December	435	202	2,700,268	87,105
Total	.....	.....	36,400,968	*99,456

*Average.

	—Stacks— No.	In	——Output—— Total	Av.daily
1921				
January	436	184	2,414,753	77,895
February	436	155	1,929,394	68,906
March	436	103	1,594,866	51,447
April	436	96	1,190,751	39,691
May	436	90	1,215,272	39,202
June	436	74	1,064,007	35,466
July	435	69	864,642	27,892
August	436	69	954,901	30,802
September	435	84	985,795	32,859
October	435	95	1,234,450	39,821
November	429	120	1,414,958	47,165
December	429	123	1,642,775	52,992
Total	.....	.....	16,506,564	*45,223
1922				
January	430	127	1,645,804	53,090
February	429	139	1,630,180	58,220
March	429	155	2,035,908	65,674
April	429	161	2,070,161	69,005
May	427	175	2,309,348	74,495
June	427	191	2,362,455	78,748
July	427	170	2,403,030	77,517
August	427	143	1,810,665	58,408
September	427	189	2,024,008	67,466
October	428	218	2,629,655	84,827
November	428	241	2,846,110	94,870
December	428	253	3,083,520	99,468
Total	.....	.....	26,850,844	*73,563
1923				
January	428	261	3,228,226	104,136
February	424	278	2,993,918	106,925
March	424	295	3,523,595	113,664
April	423	311	3,547,012	118,233
May	423	322	3,868,486	124,790
June	424	322	3,667,868	122,262
July	418	299	3,684,677	118,860
August	418	270	3,448,886	111,254
September	418	254	3,117,526	103,917
October	418	245	3,142,642	101,375
November	418	229	2,891,191	96,373
December	418	231	2,912,527	93,952
Total	.....	.....	40,025,850	*109,659
1924				
January	414	248	3,015,480	97,273
February	414	263	3,073,619	105,987
March	410	269	3,465,389	111,787
April	410	234	3,226,107	107,537
May	411	187	2,619,986	84,515
June	411	158	2,022,836	67,427
July	411	145	1,783,457	57,531
August	411	150	1,882,986	60,741
September	411	174	2,053,617	68,454
October	411	182	2,461,727	79,410
November	411	204	2,514,979	83,832
December	411	229	2,956,389	95,367
Total	.....	.....	31,076,572	*84,908
1925				
January	411	251	3,372,207	108,781
February	411	256	3,214,067	114,788
March	410	246	3,571,422	115,207
April	409	221	3,211,235	107,041
May	405	196	2,933,907	94,642
June	401	191	2,679,045	89,301
July	396	188	2,665,262	85,976
August	391	192	2,707,171	87,328
September	387	200	2,725,885	90,862

Ingots and Castings

By American Iron and Steel Institute

By American Iron and Steel Institute.....	Ingots	Castings	Total
1922	34,568,418	1,034,508	35,602,926
1923	43,485,665	1,458,031	44,943,696
1924	36,811,157	1,120,782	37,931,939

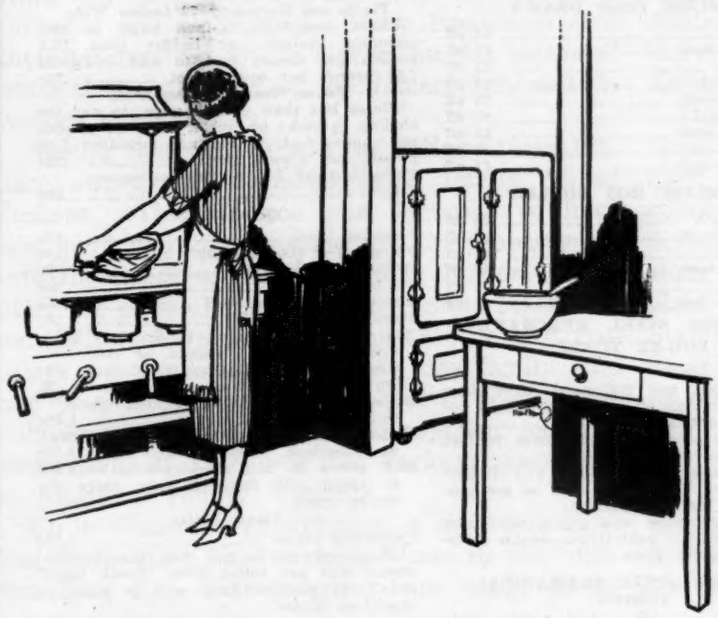
Monthly Ingot Output

Gross Tons

1925	94.43 per cent of capacity	Calculated total
January	3,964,704	4,198,564
February	3,547,020	3,756,243
March	3,964,662	4,198,520
April	3,387,699	3,587,524
May	3,265,628	3,458,253
June	3,028,423	3,207,056
July	2,915,611	3,087,590
August	3,233,315	3,424,034
September	3,298,349	3,492,904

WABIK METAL SHEETS

"The Base for Distinctive Enameling"



"Wabik Metal" Sheets are used extensively for Stove Door Panels, Splasher Backs, Broiler Pans, Table Tops, Refrigerator Linings, Signs and all other flat work that calls for attractive and durable Vitreous Enameling.

Sheet Steel used as a base for Vitreous Enameling is of a distinctive character. It possesses characteristics that only Vitreous Enameling requires.

Therefore the makers of Mansfield "Wabik Metal" devote their efforts to specialized production of sheets for Vitreous Enameling and the development of those qualities in a sheet that are so necessary to the permanence and durability of the enameled surface.

"Wabik Metal" Sheets have just the right porosity to provide a permanent grip for the enamel, and they are guaranteed against warping and fracturing.

Mansfield Sheet & Tin Plate Company

Mansfield, Ohio

12-237 General Motors Bldg., Detroit, Mich.
1372 Wrigley Bldg., Chicago, Ill.
410 Pierce Bldg., St. Louis, Mo.
1106 National City Bldg., New York, N. Y.
2002 Union Trust Bldg., Cleveland, Ohio
1504 West Venango Street, Philadelphia, Pa.

District Sales Offices

1403 Merchants Bank Bldg., Indianapolis, Ind.
1020 Union Trust Bldg., Cincinnati, Ohio
640 Endicott Bldg., St. Paul, Minn.
237 Rialto Bldg., San Francisco, Calif.
509 Wilcox Bldg., Los Angeles, Calif.
1426 L. C. Smith Bldg., Seattle, Wash.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	83	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent	55 off
Carbon, 0.30 to 0.40 per cent	50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14½c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per Pound for Width or Diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square feet, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼ inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{3}{16}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Pdates Over 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{3}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing Steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept., or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH or DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c